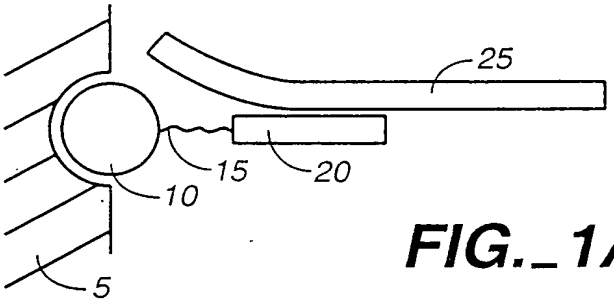


FIG._1A

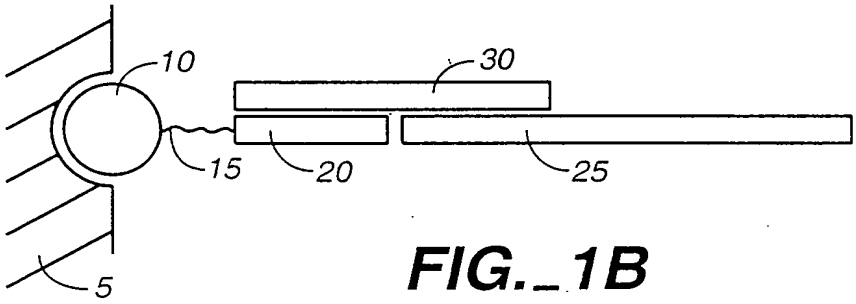


FIG._1B

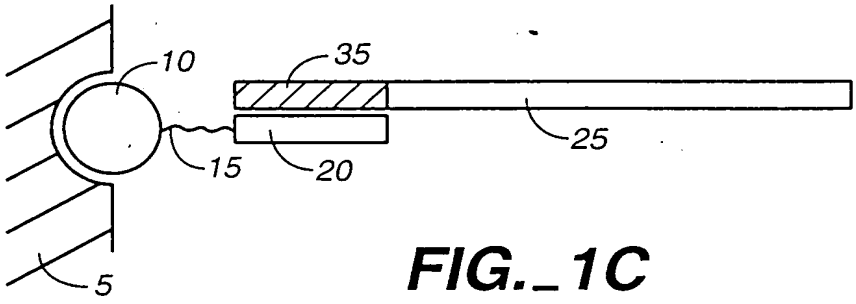


FIG._1C

FIG._2A

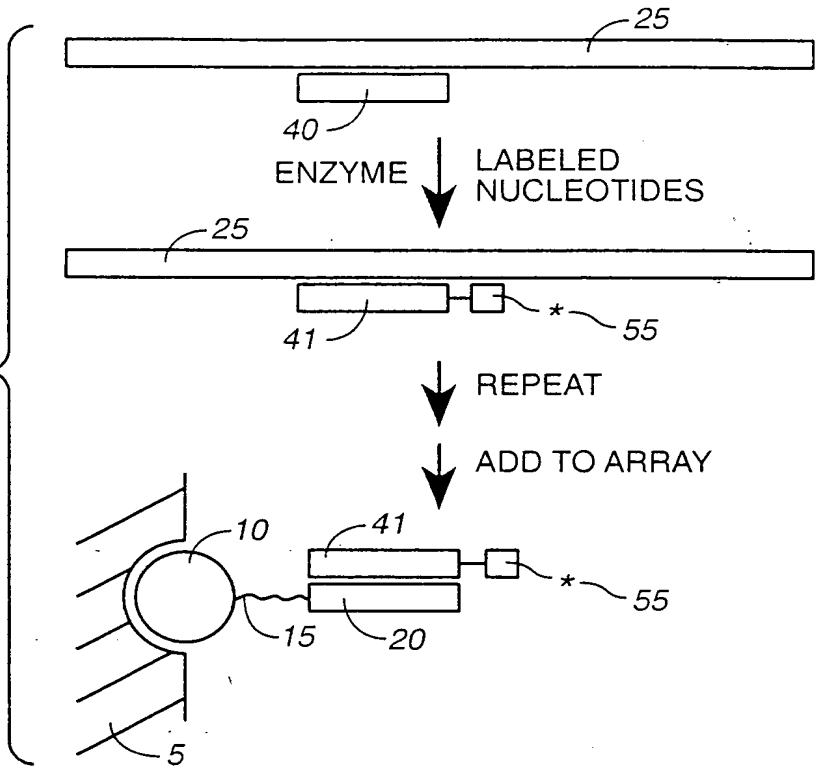


FIG._2B

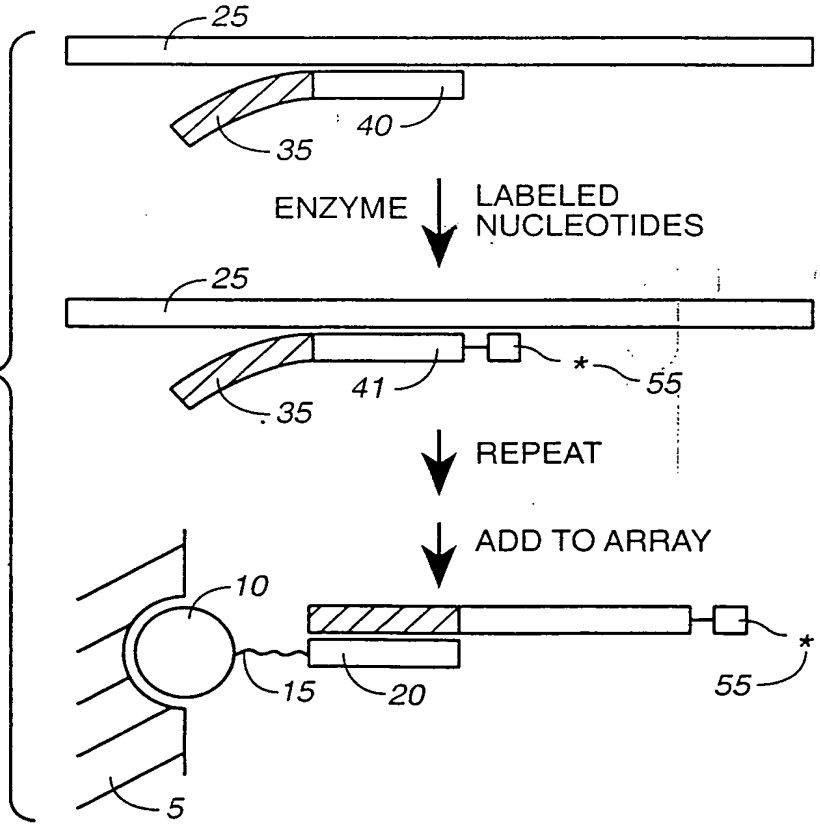


FIG._3A

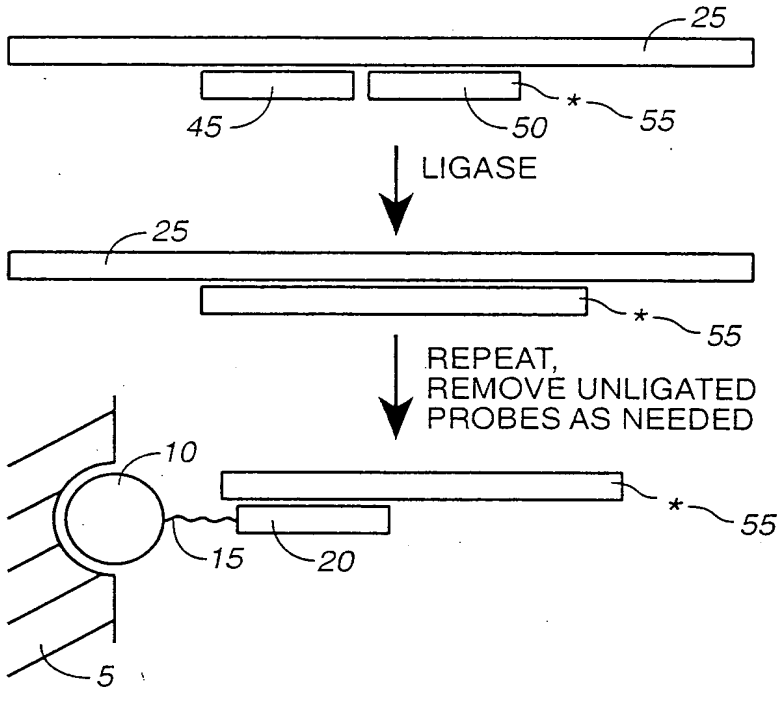
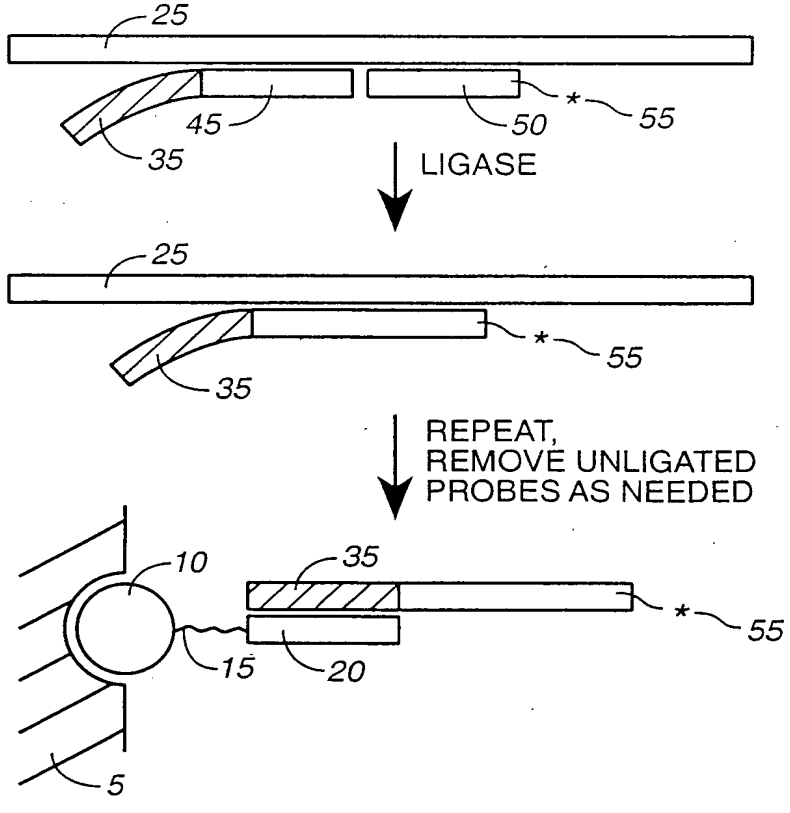


FIG._3B



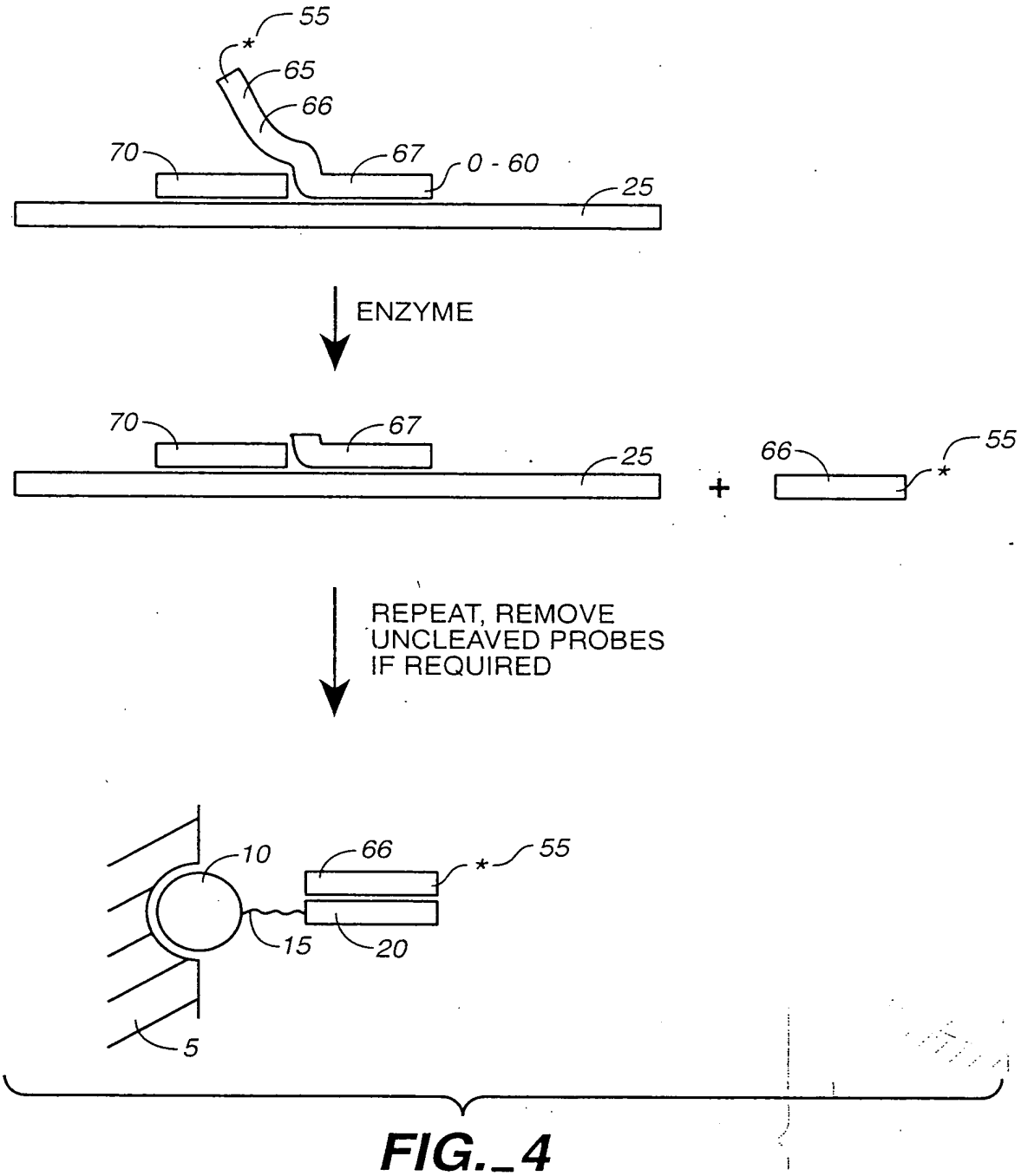


FIG._4

FIG._5A

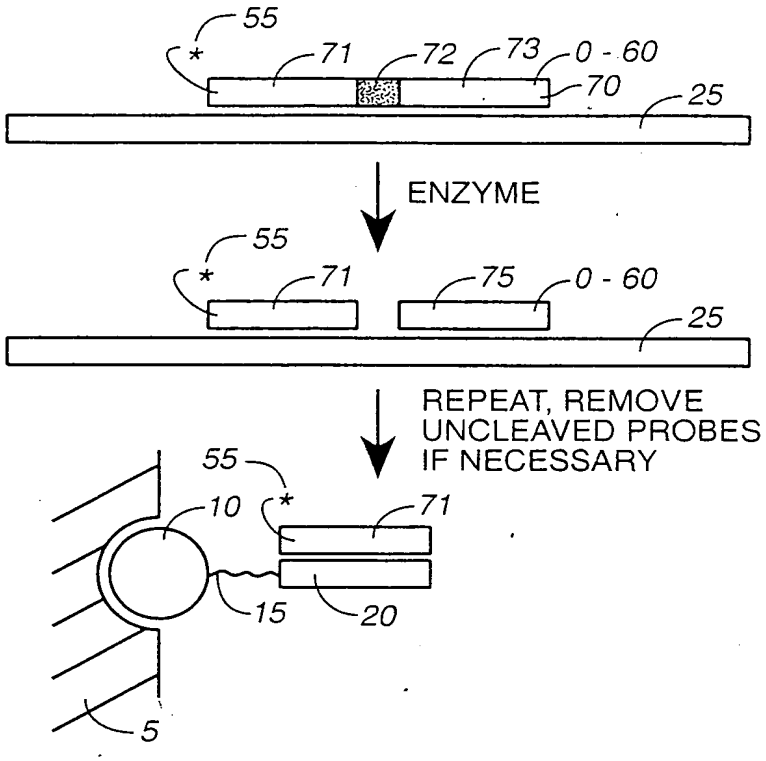
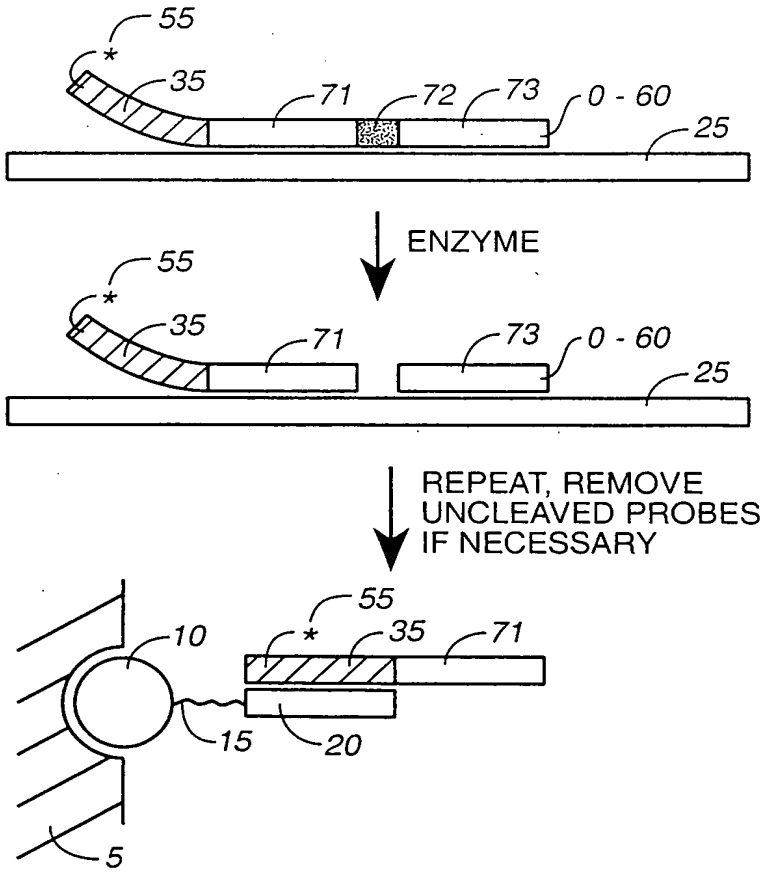


FIG._5B



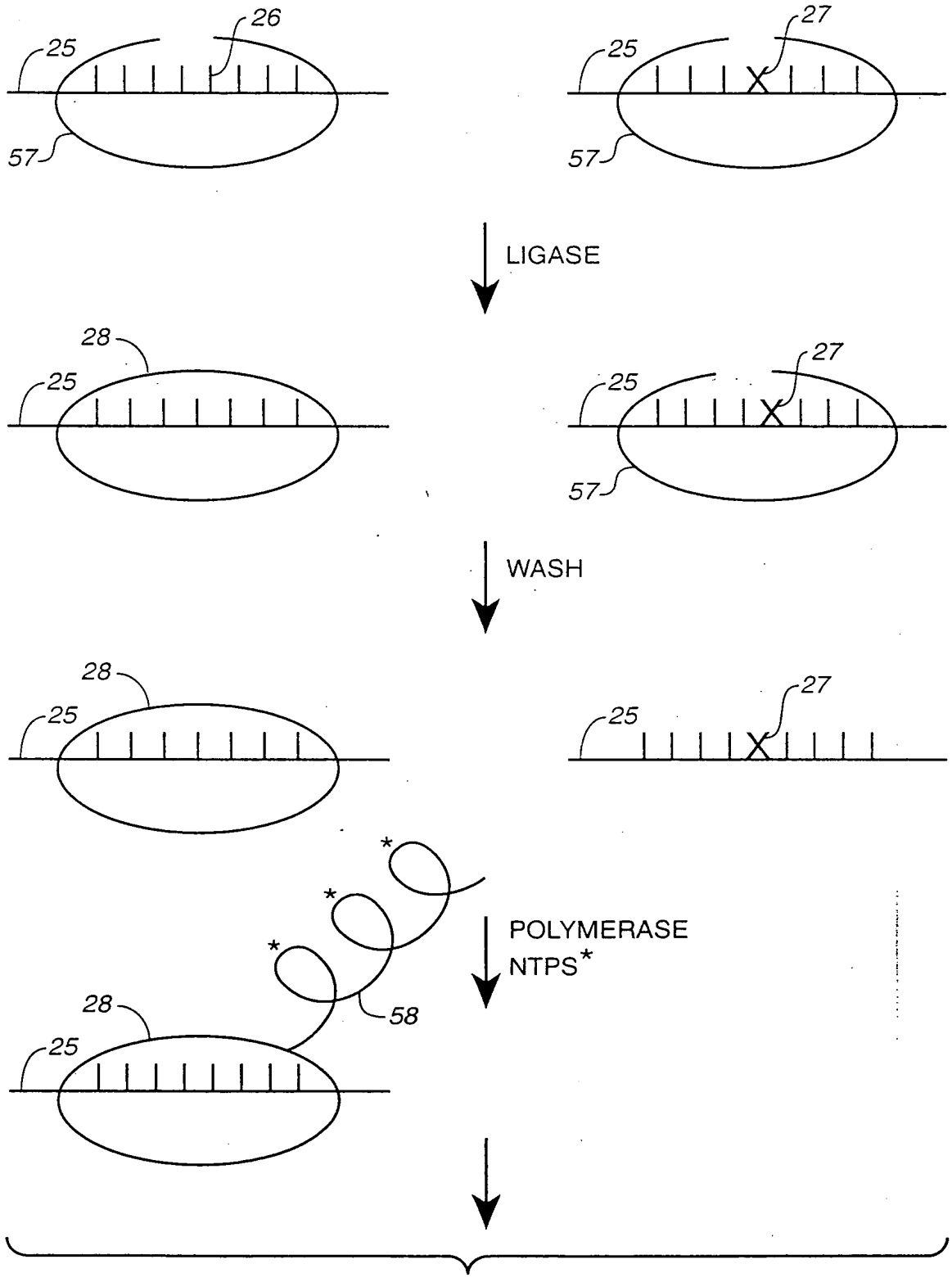
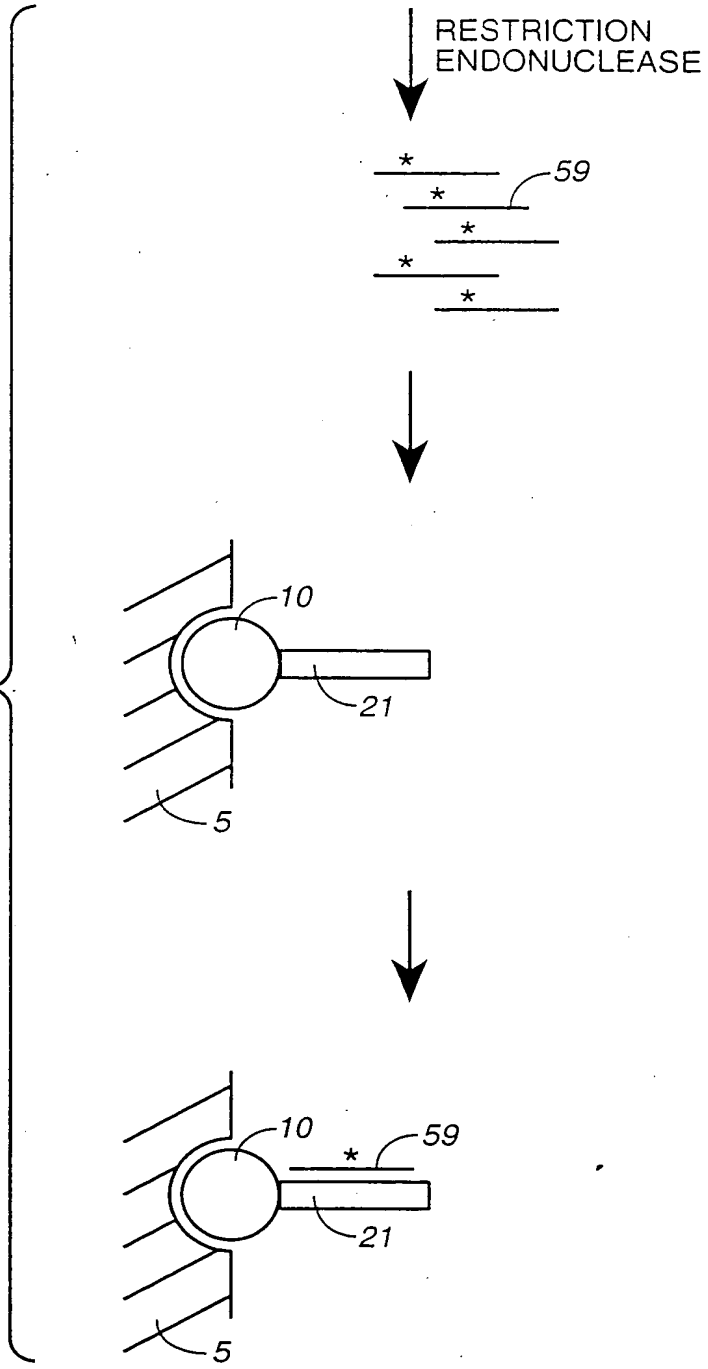


FIG._6A

FIG._6B



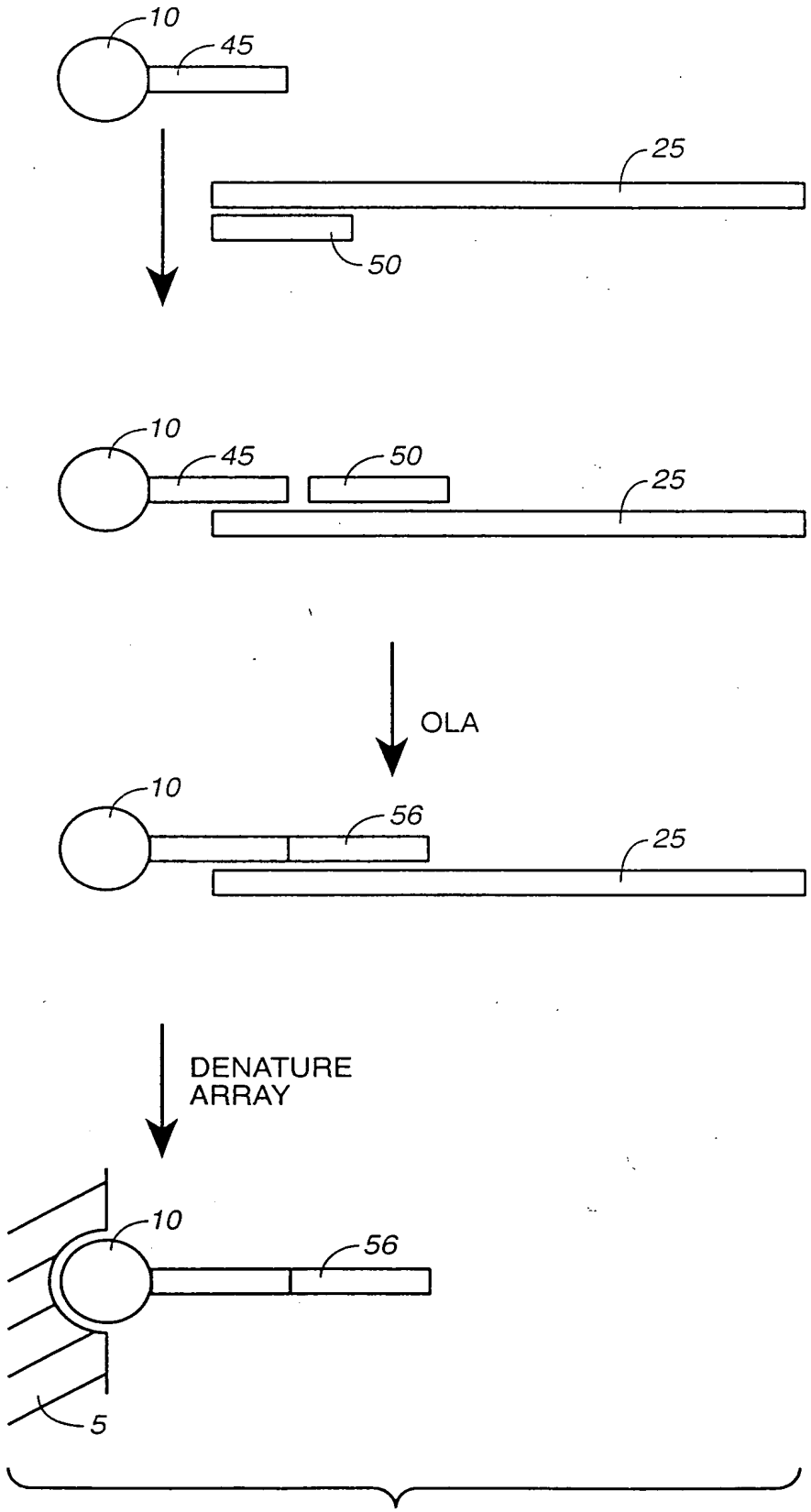


FIG._7A-1

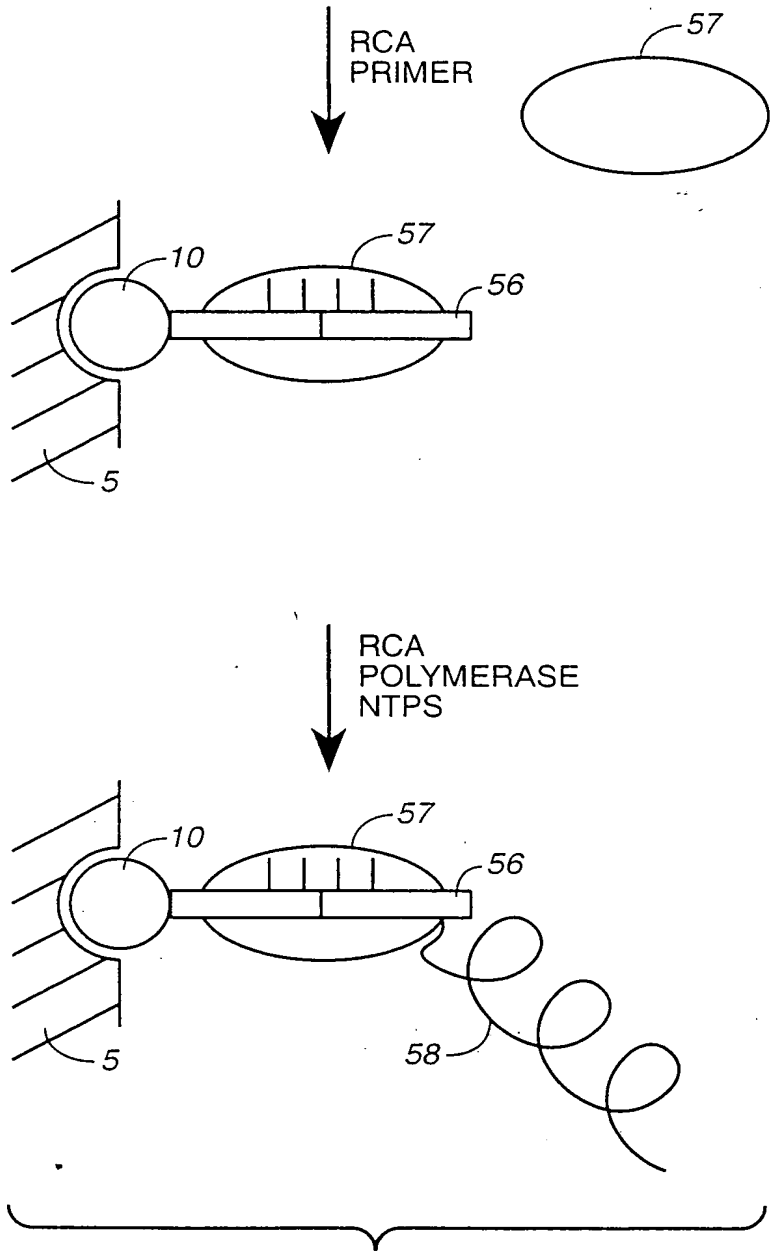


FIG._7A-2

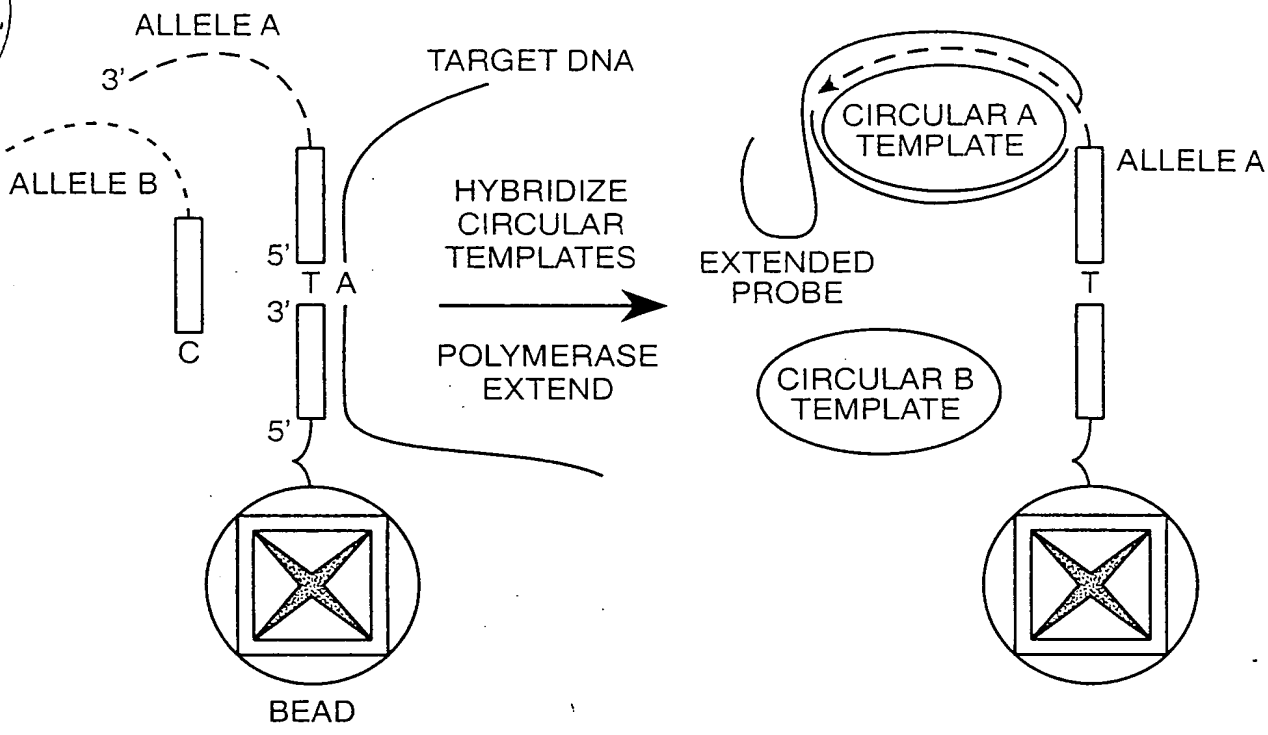


FIG._7B

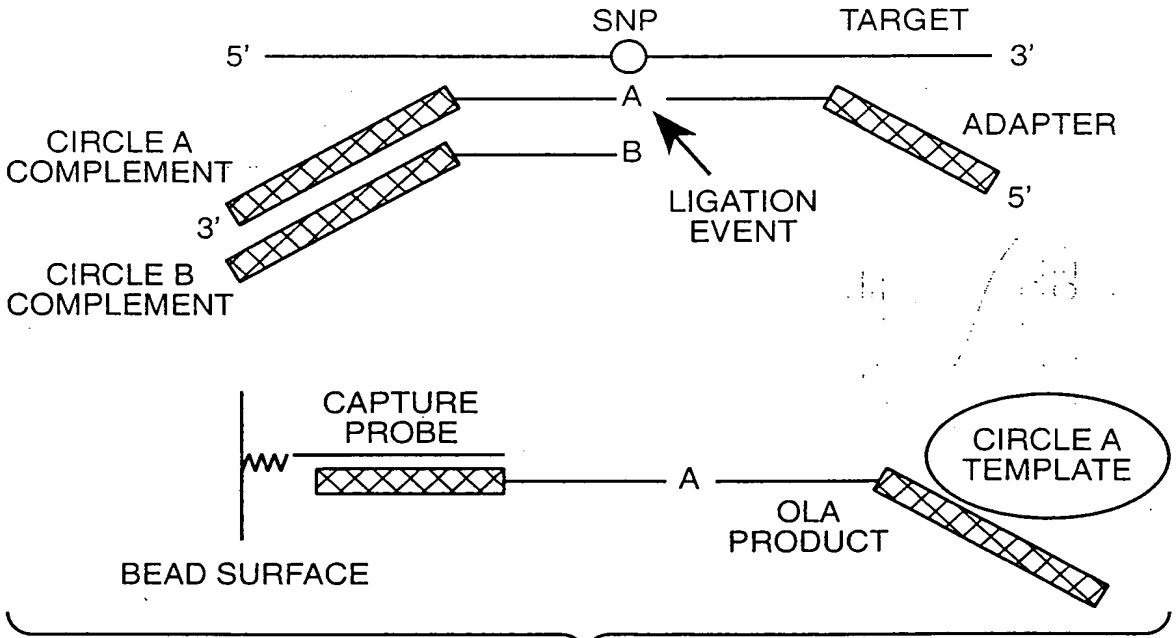


FIG._7D

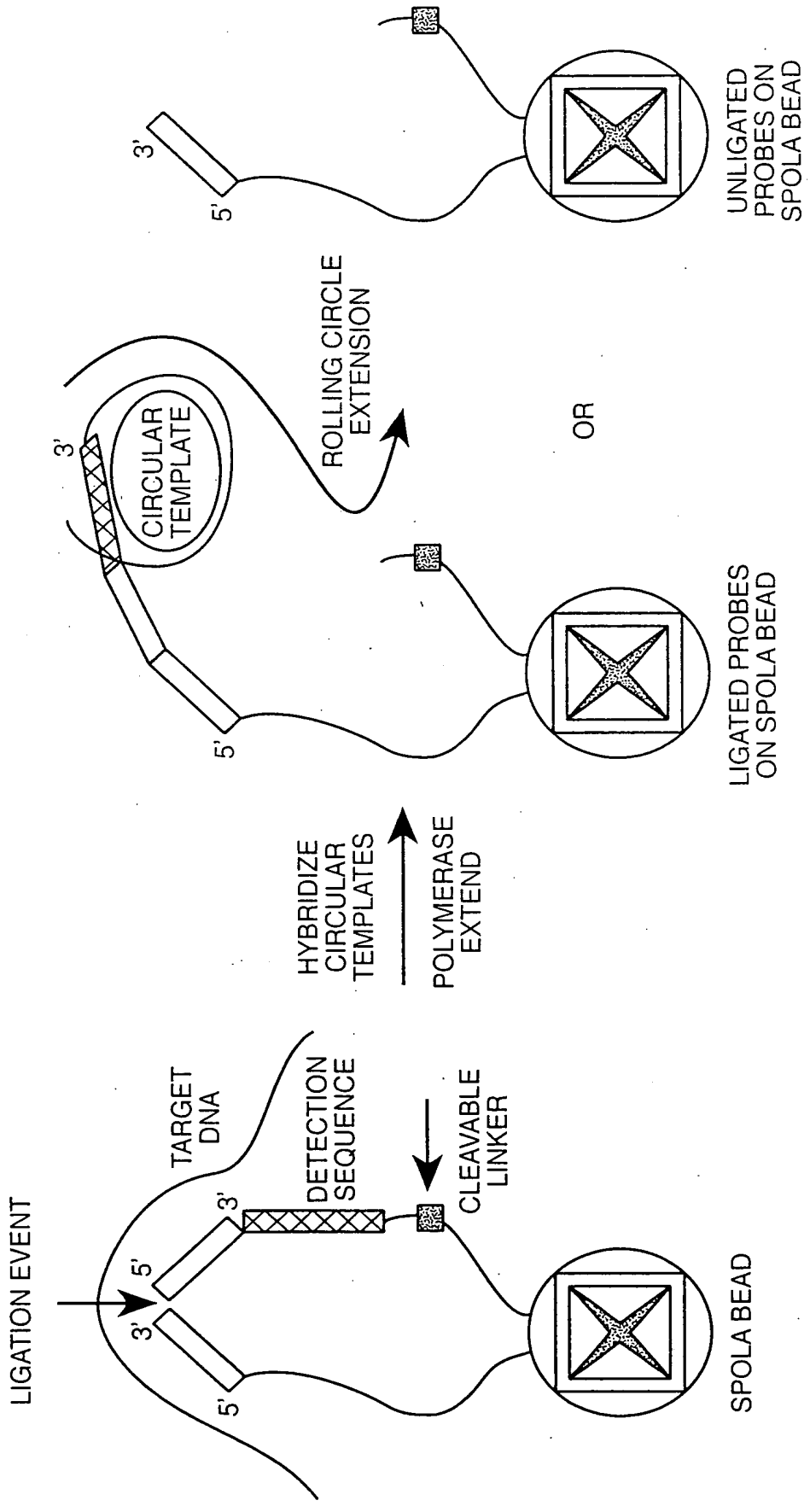


FIG._7C

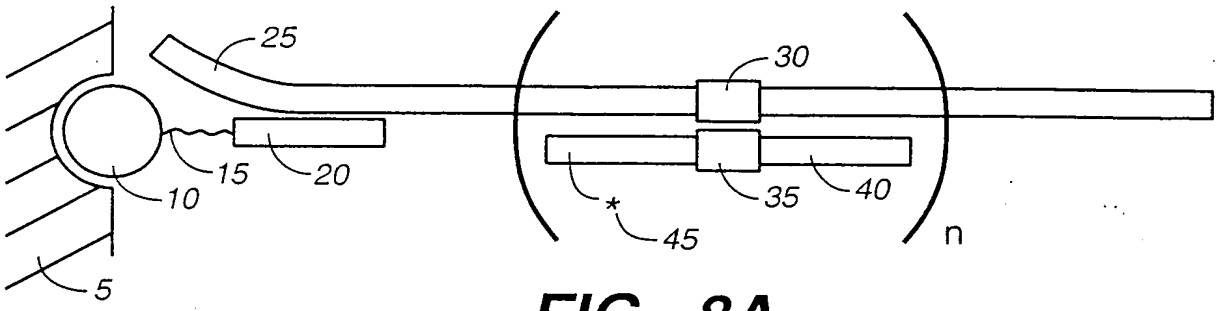


FIG._8A

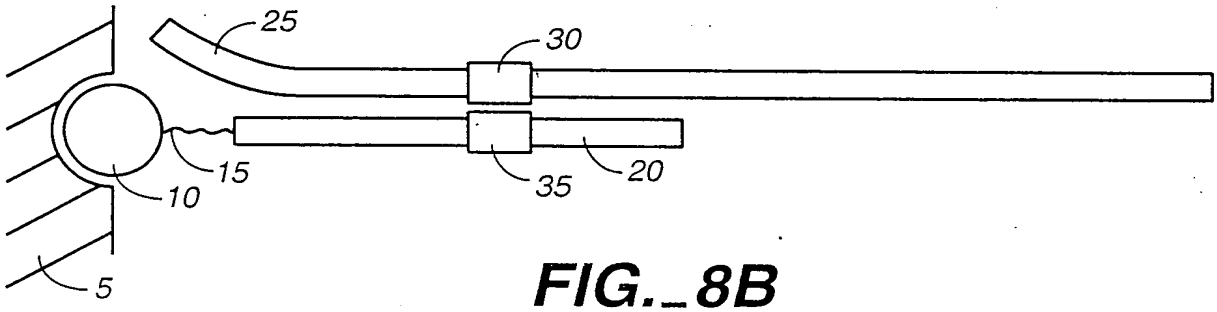


FIG._8B

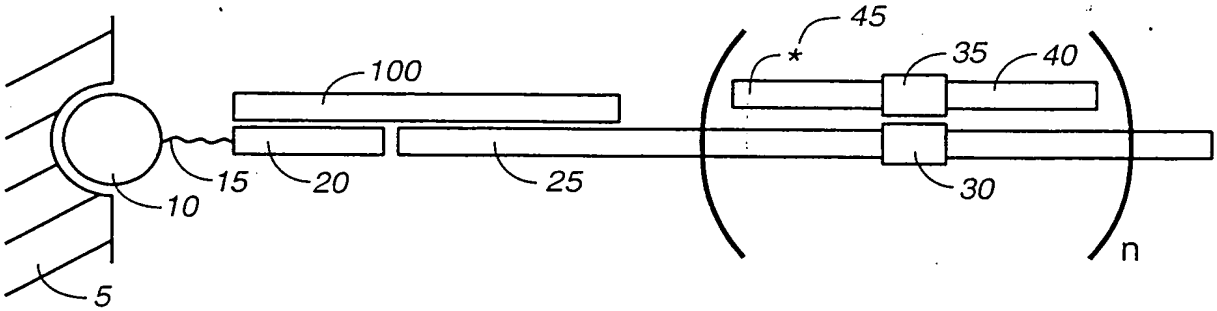


FIG._8C

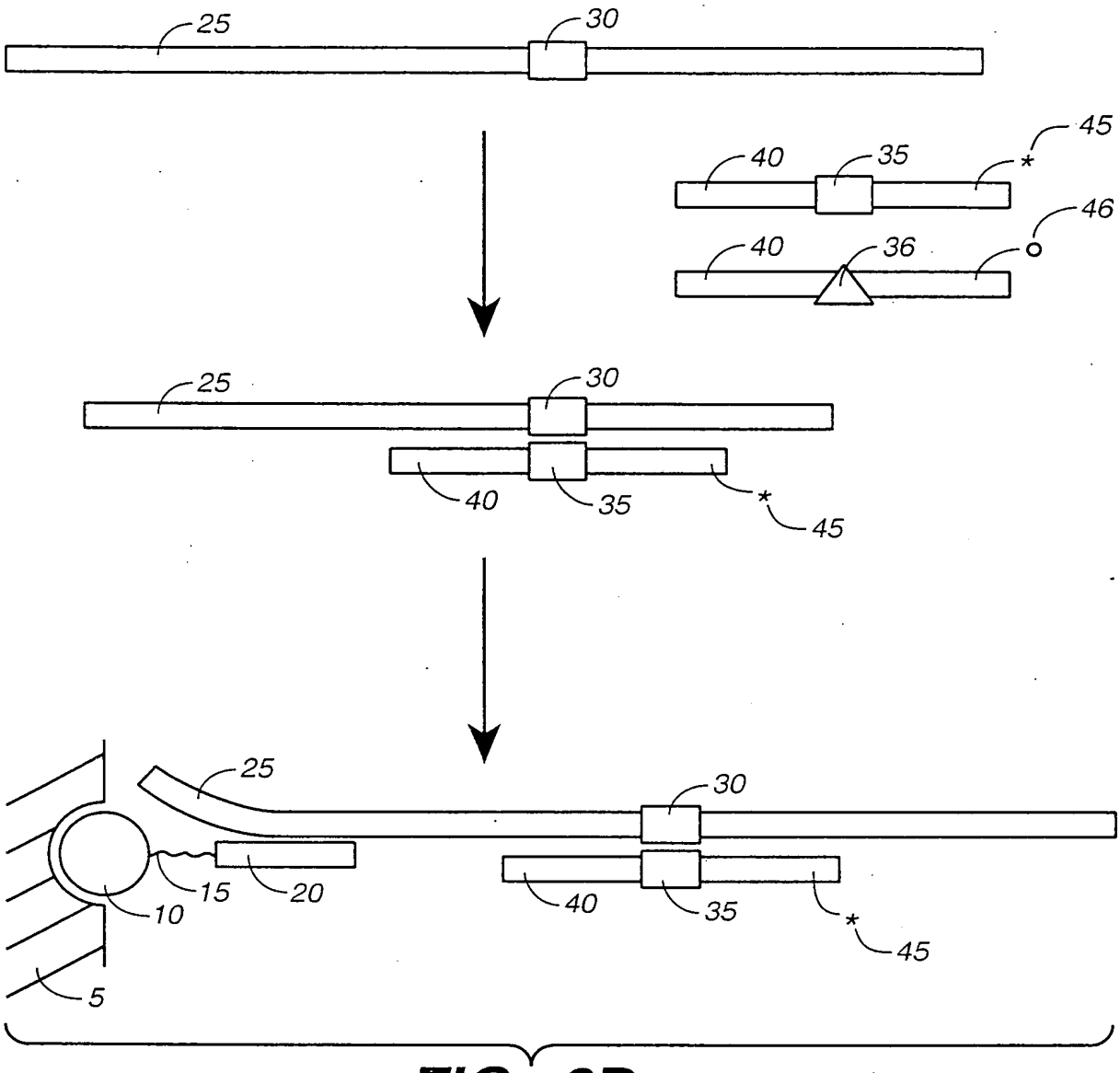


FIG._8D

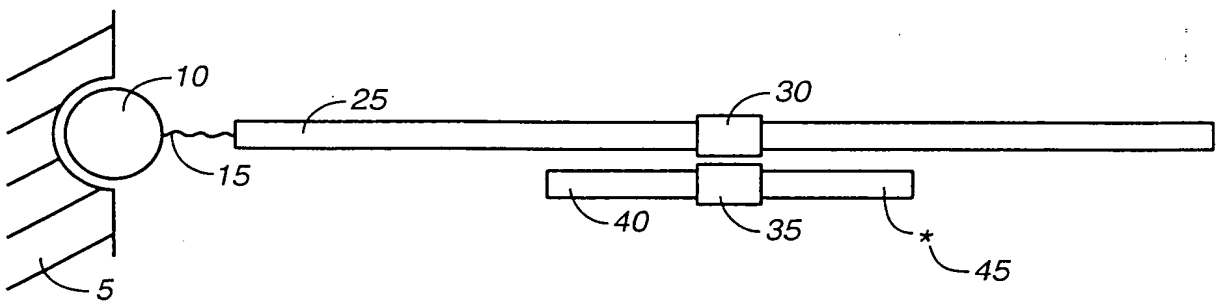


FIG._8E

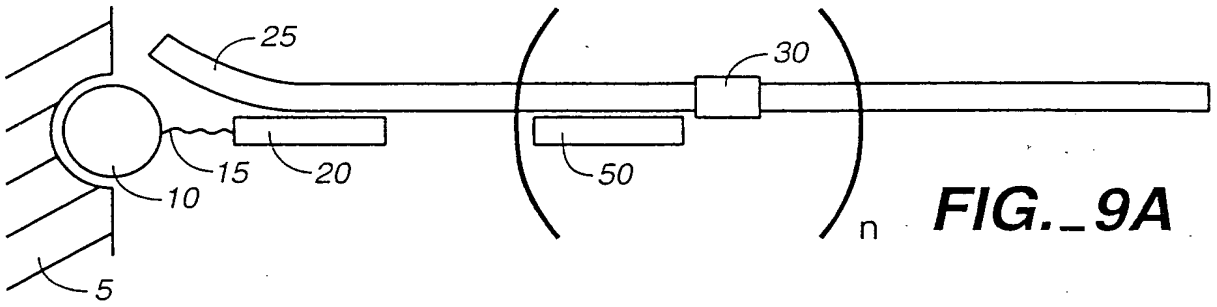


FIG._9A

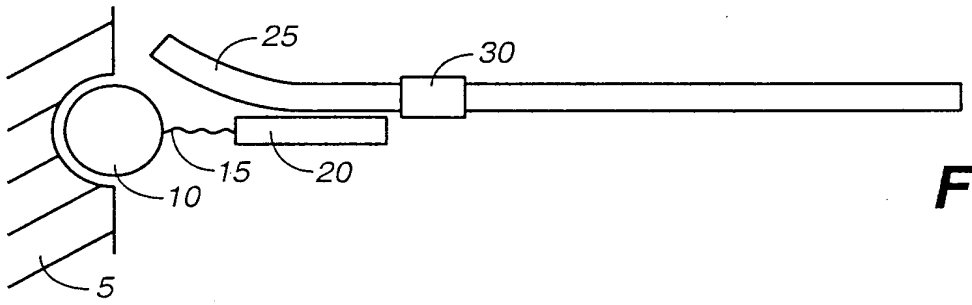


FIG._9B

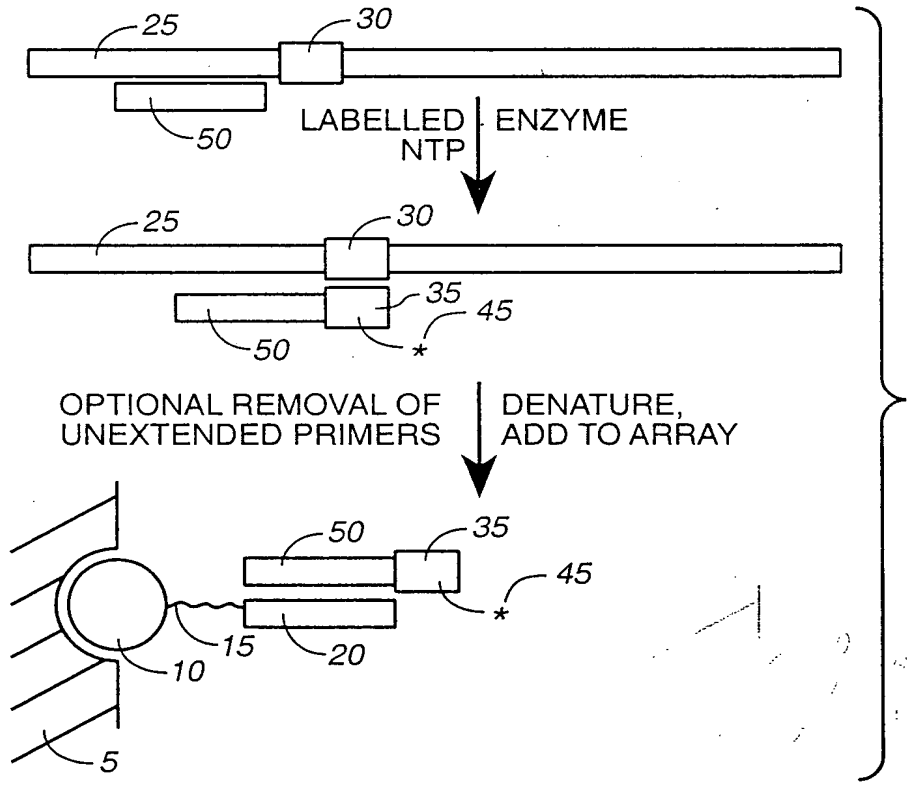


FIG._9C

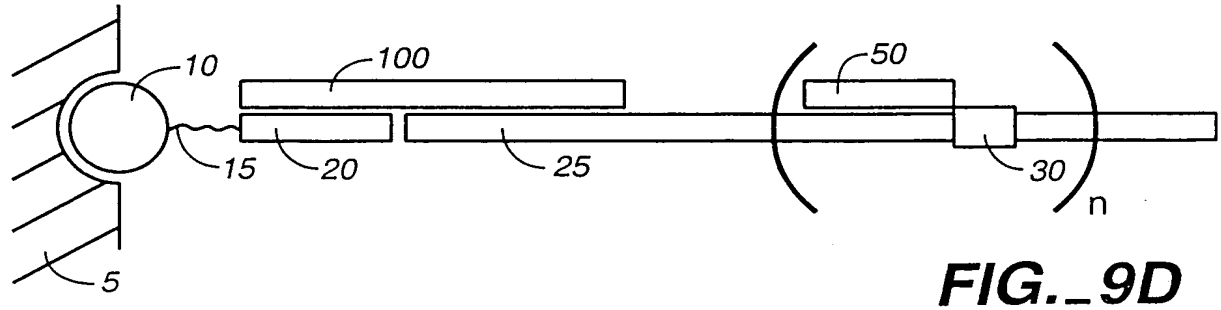


FIG._9D

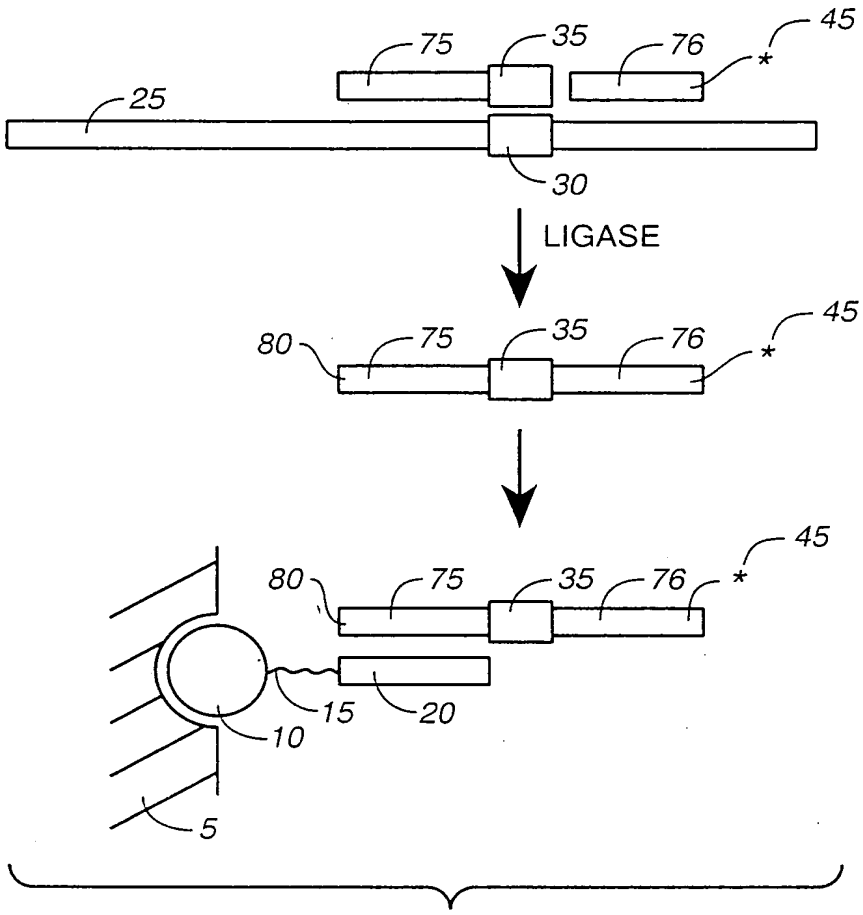


FIG._10A

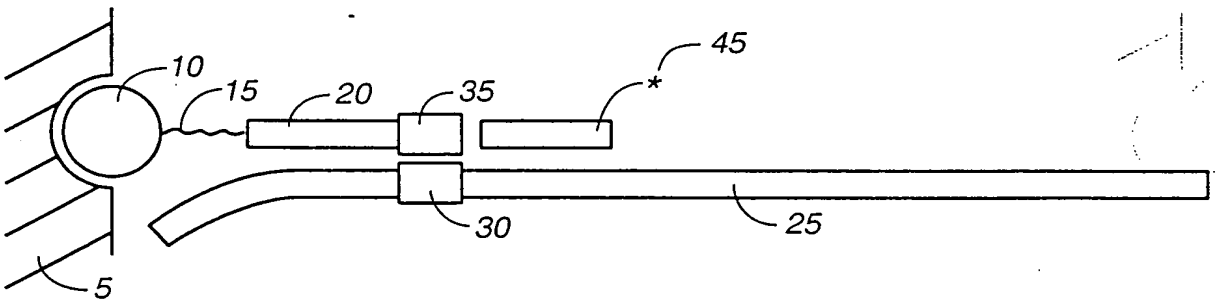


FIG._10B

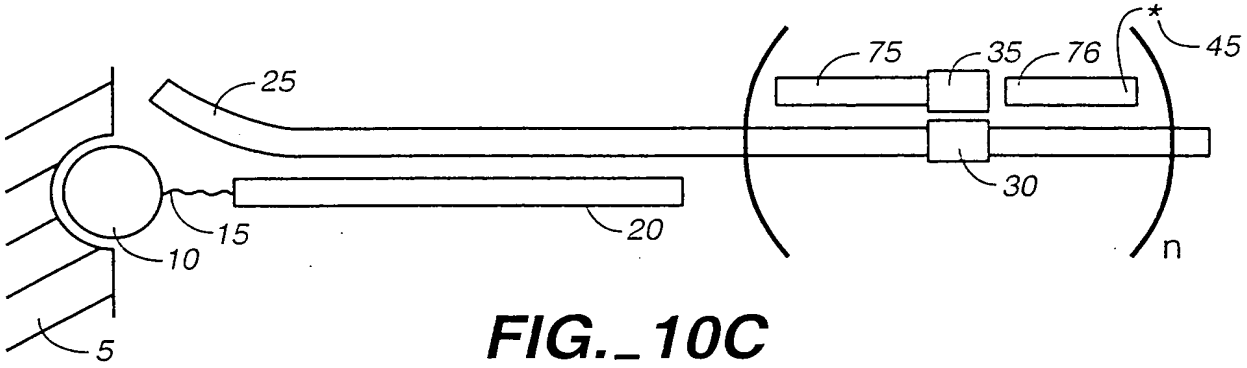


FIG._10C

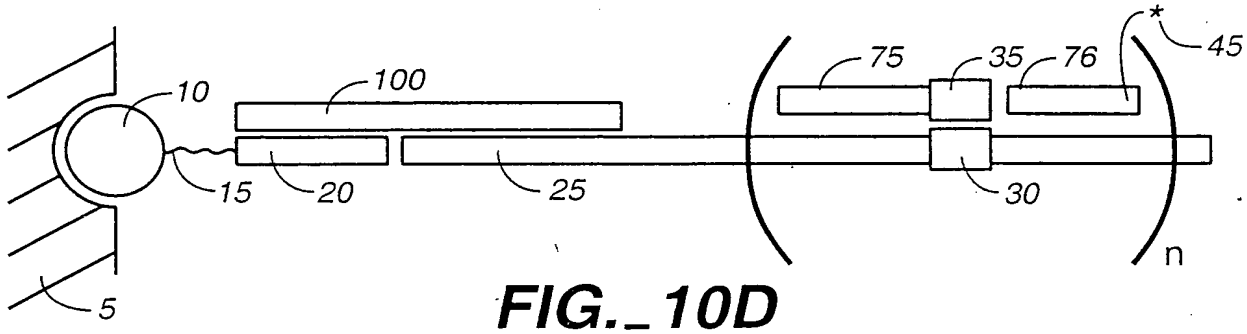


FIG._10D

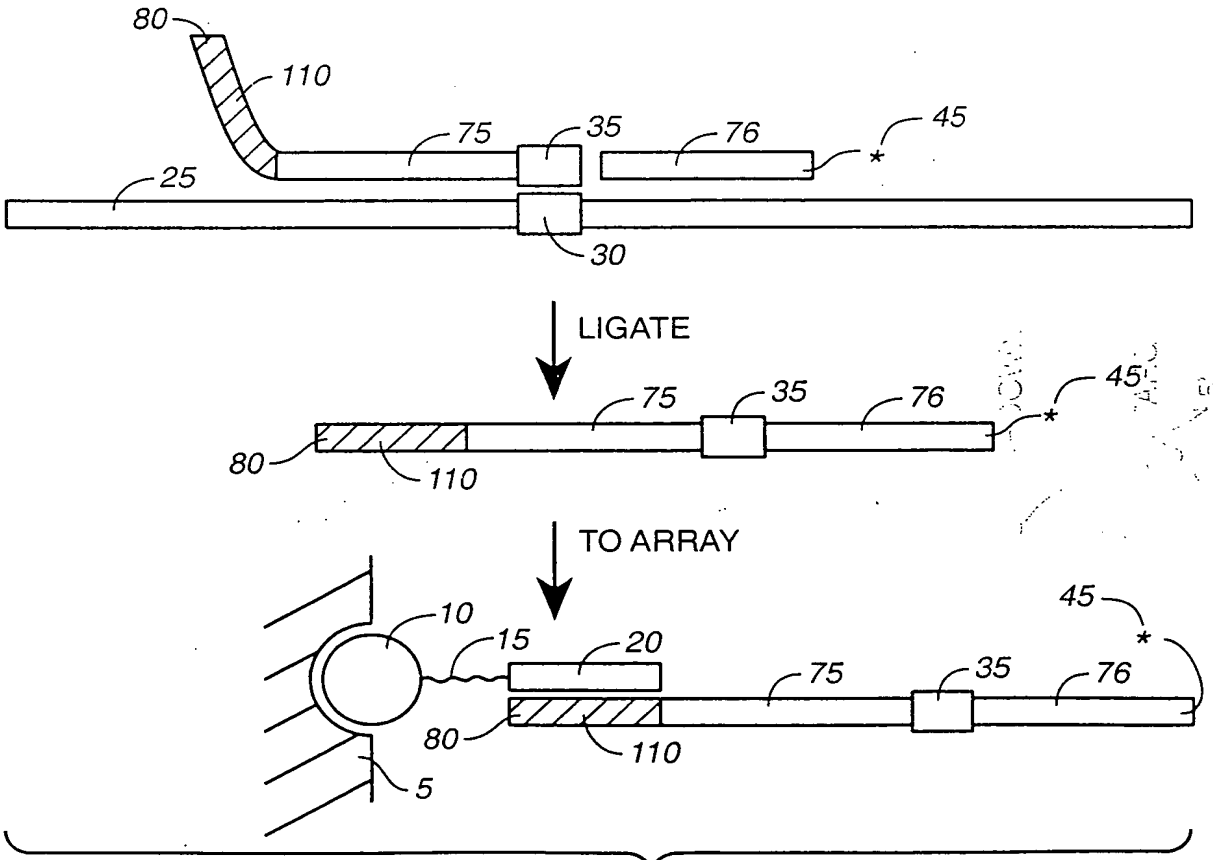


FIG._10E

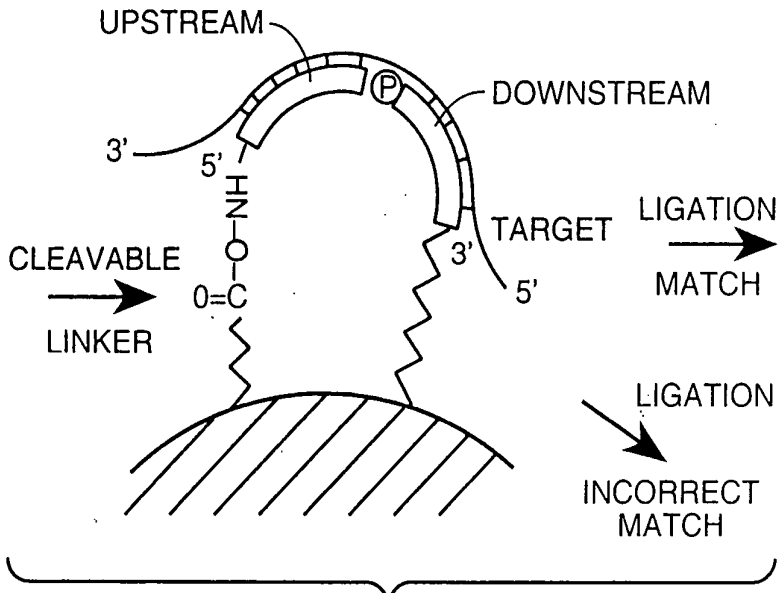
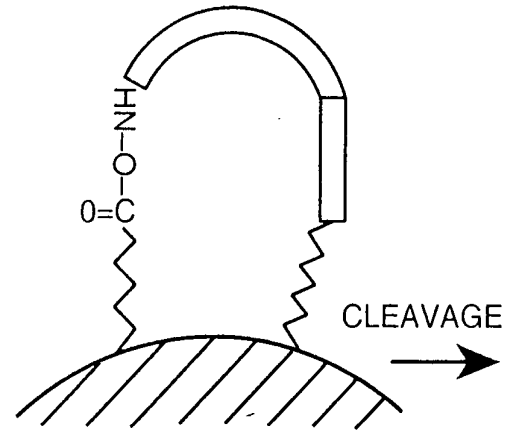
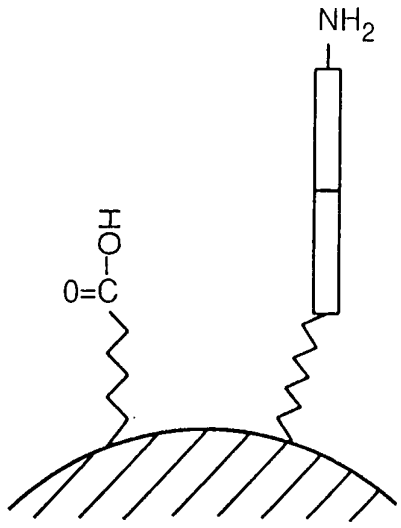


FIG._11A





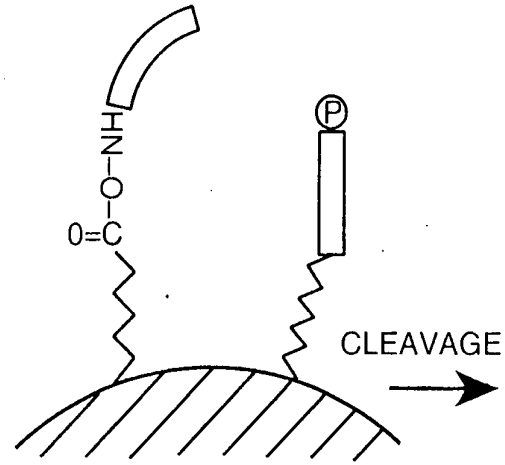


FIG._11B

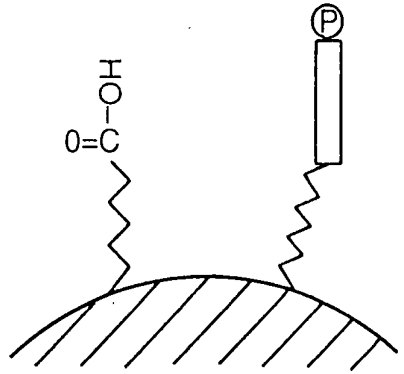


FIG._11C

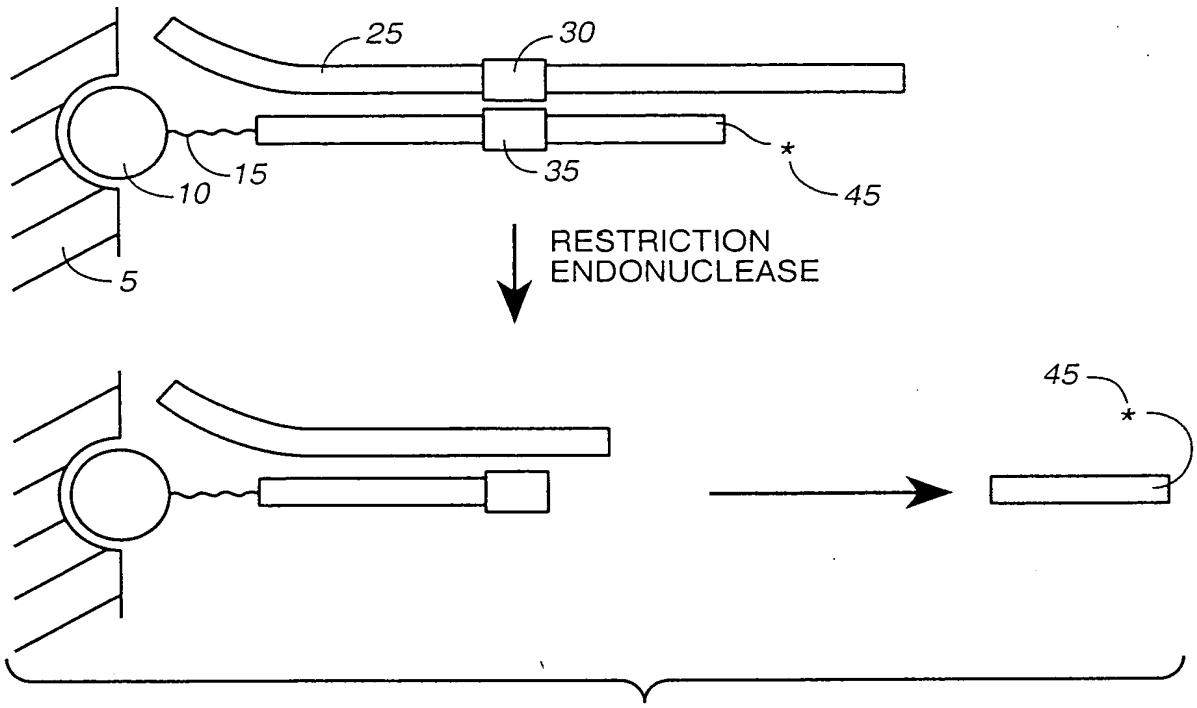


FIG._12A

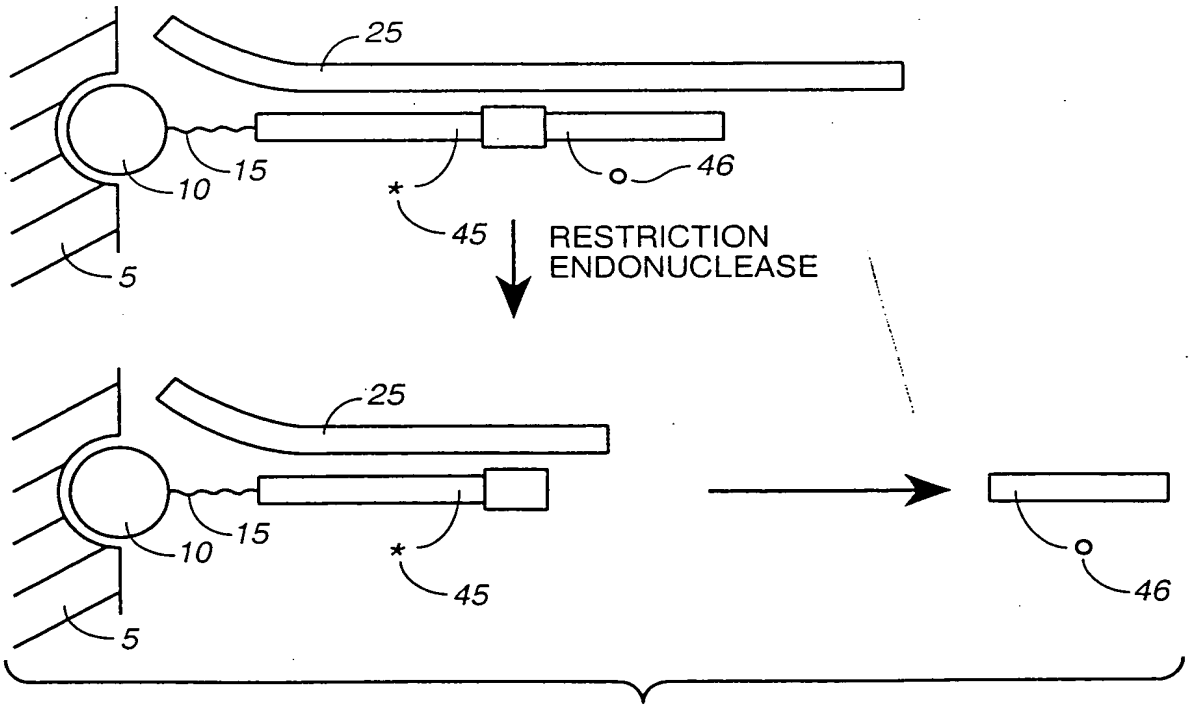


FIG._12B

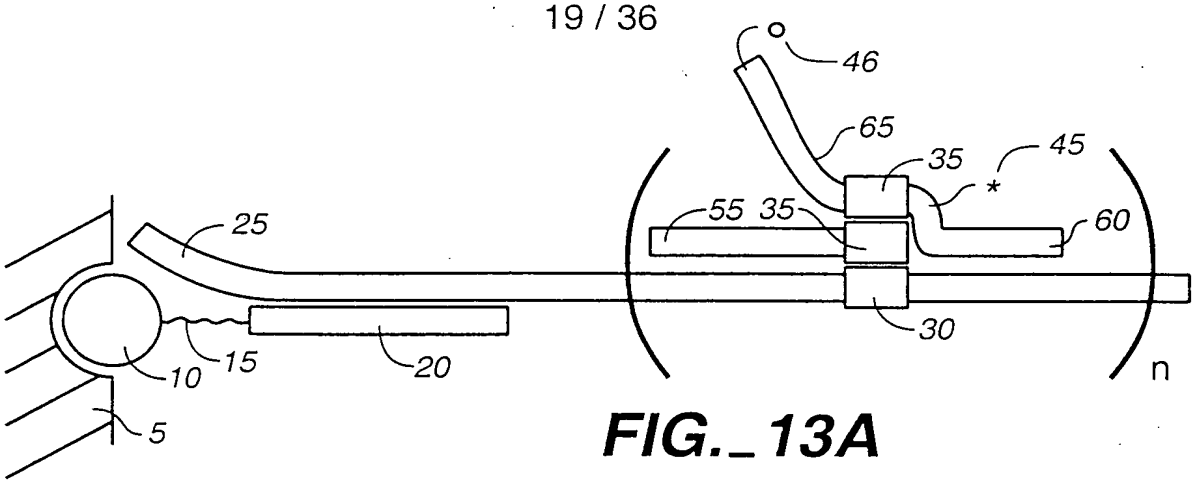


FIG._13A

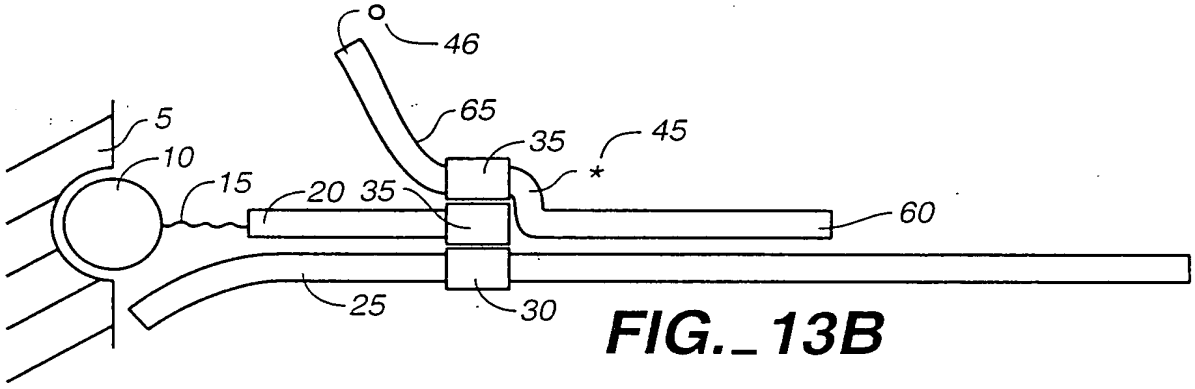


FIG._13B

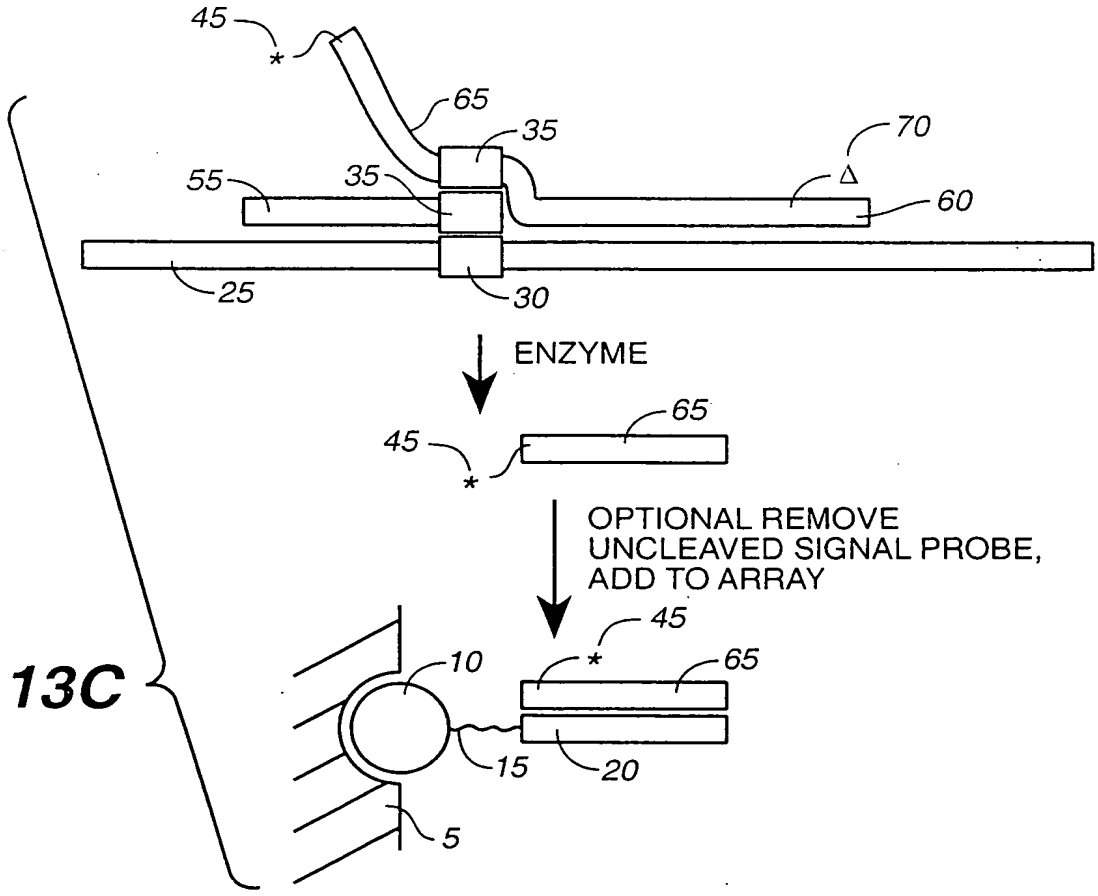


FIG._13C

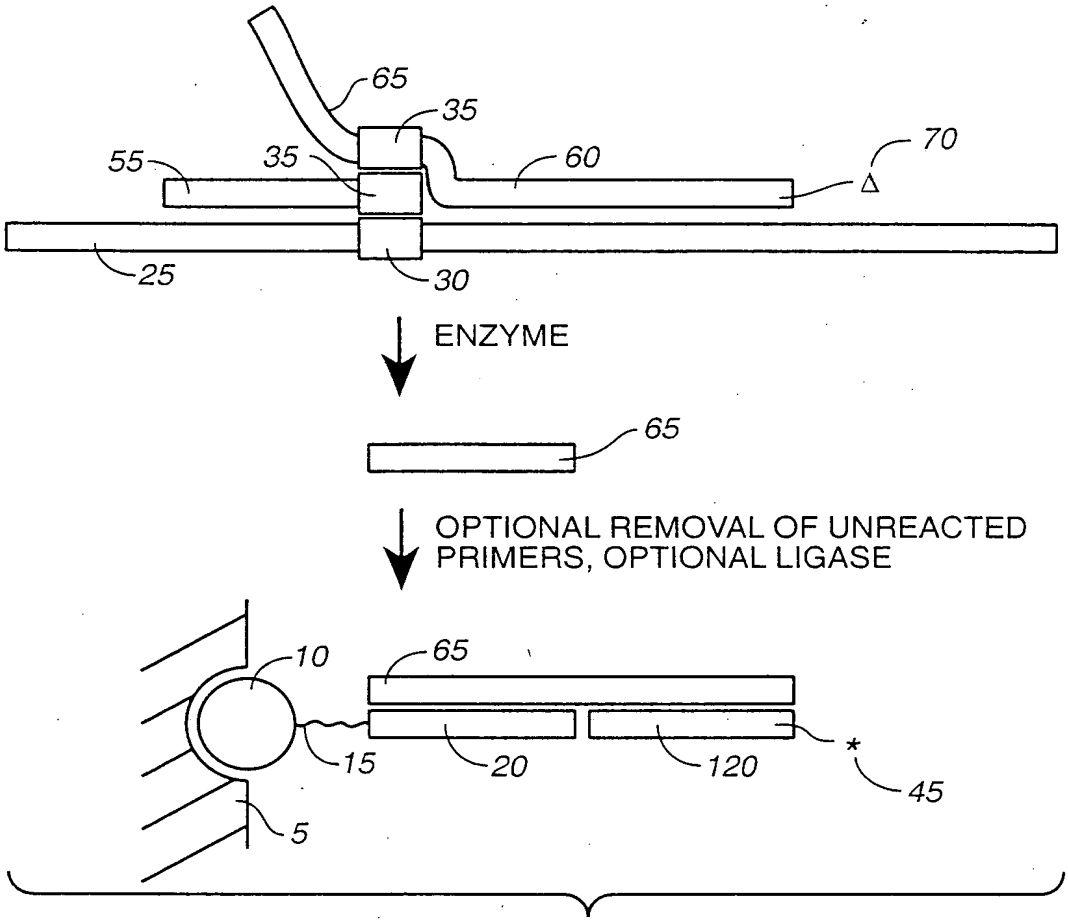


FIG._13D

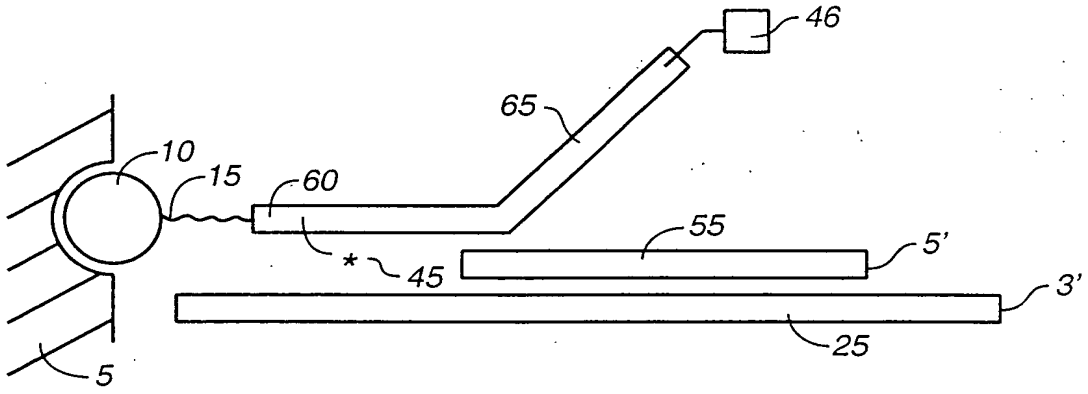


FIG._13E

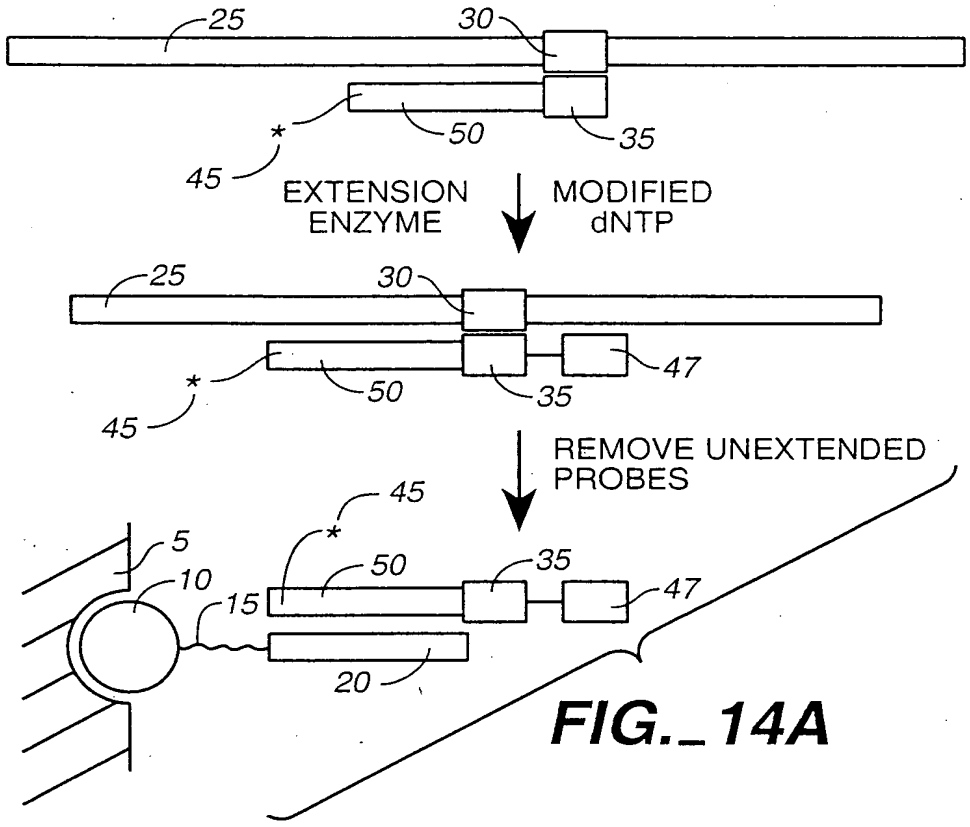


FIG._14A

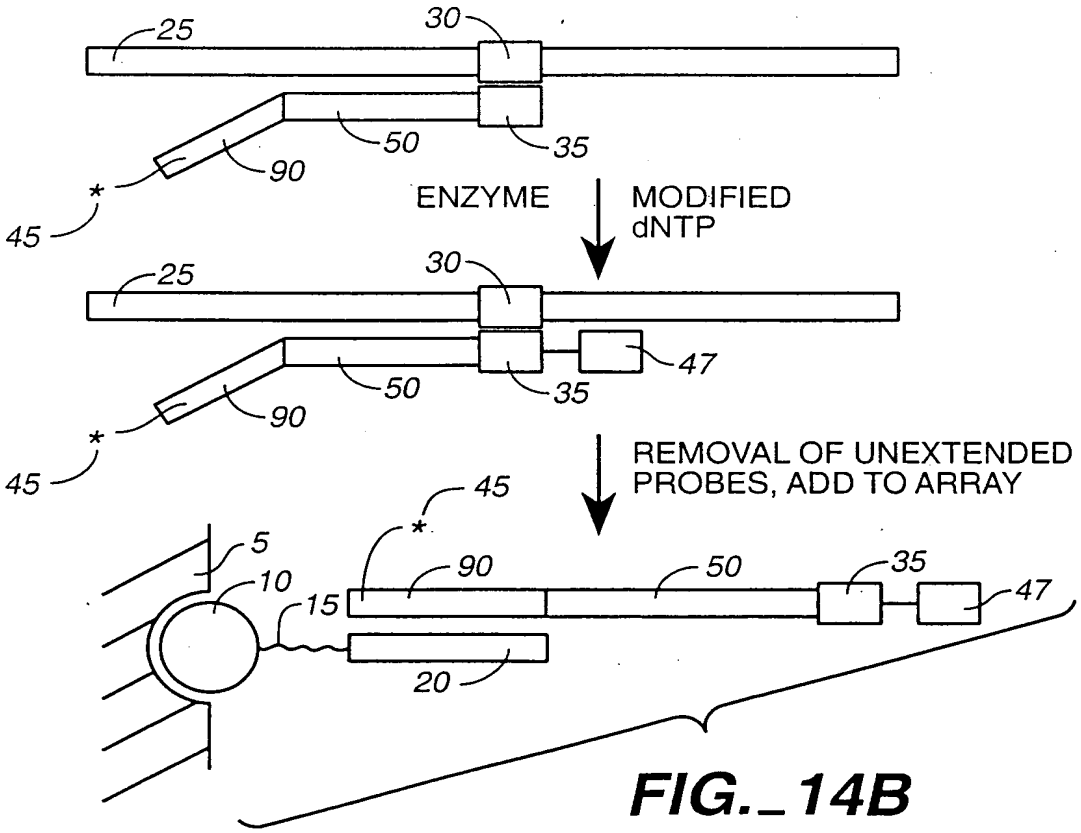


FIG._14B

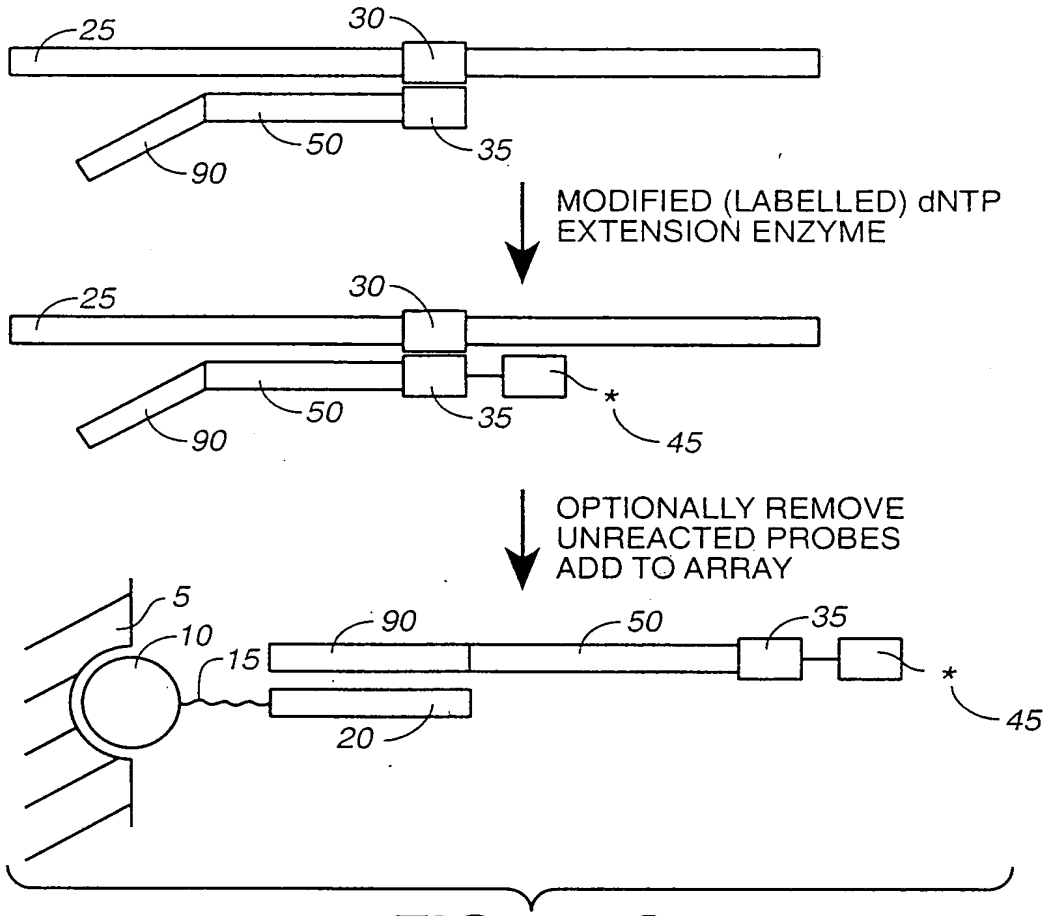


FIG._14C

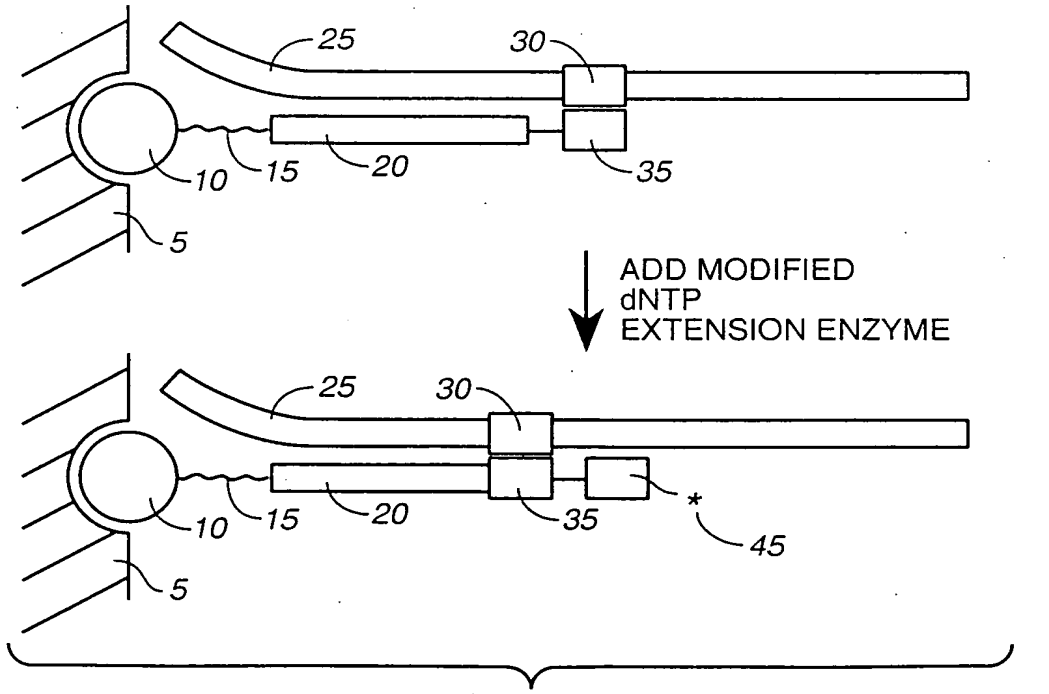


FIG._14D

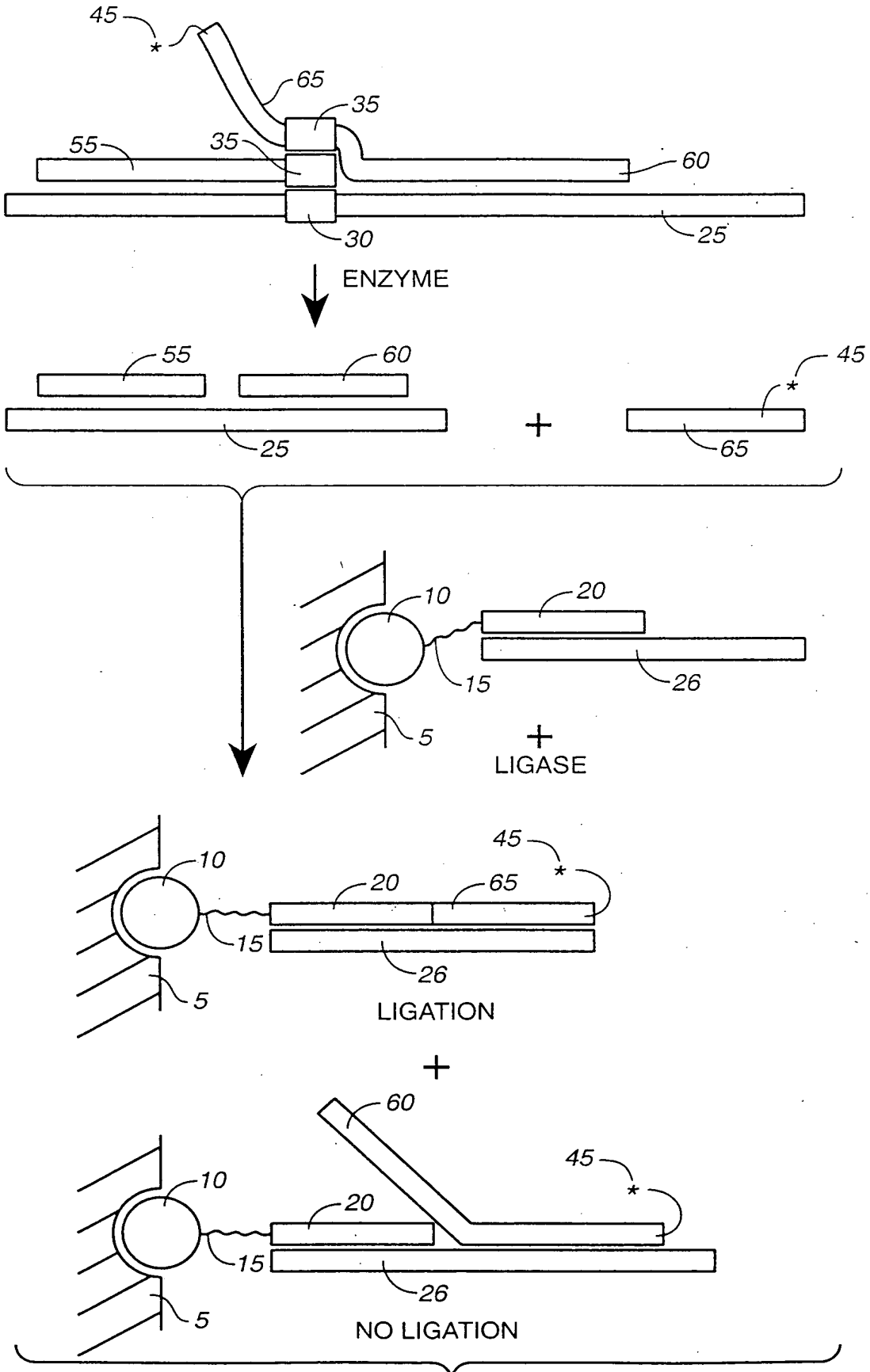


FIG._15A

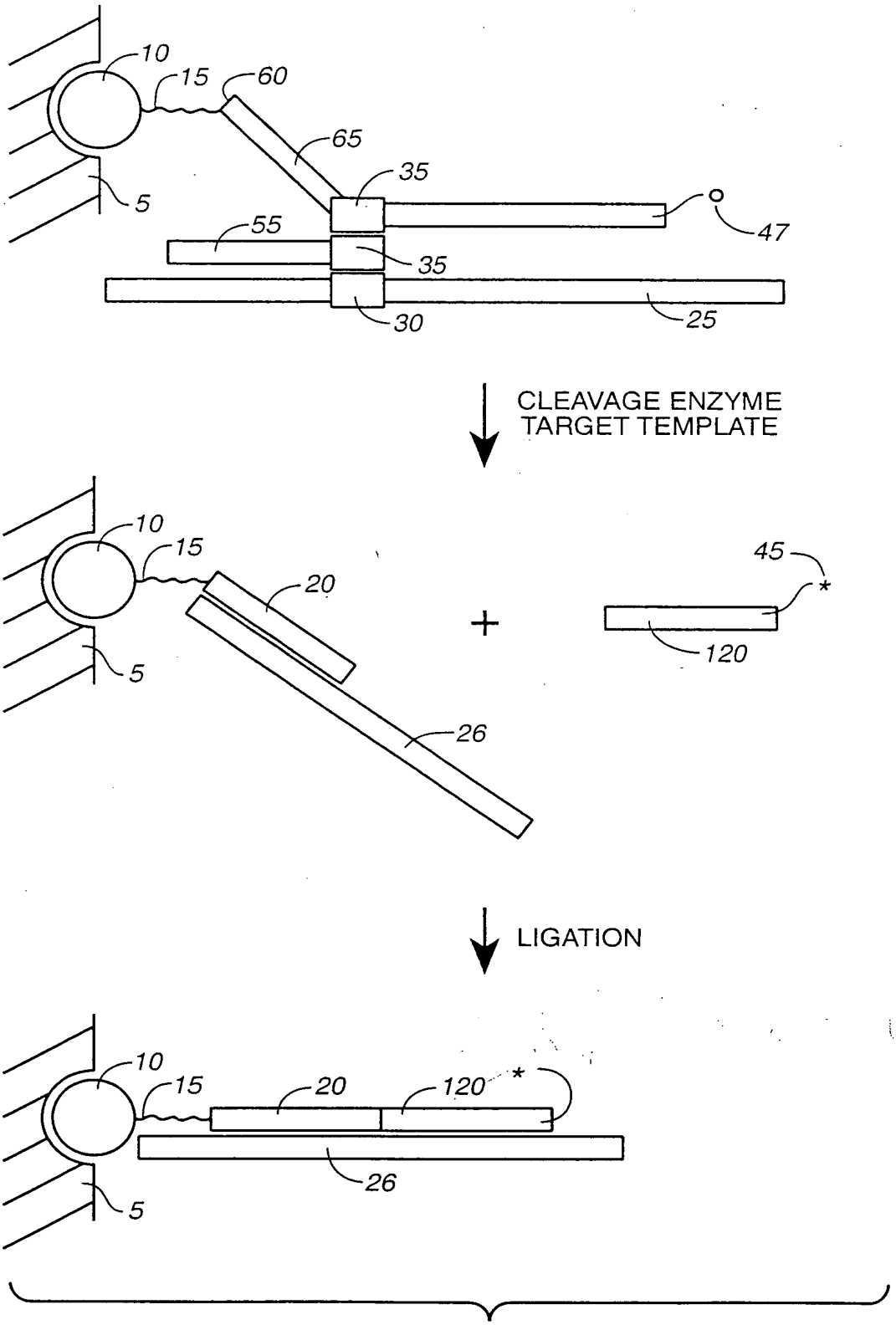


FIG._15B

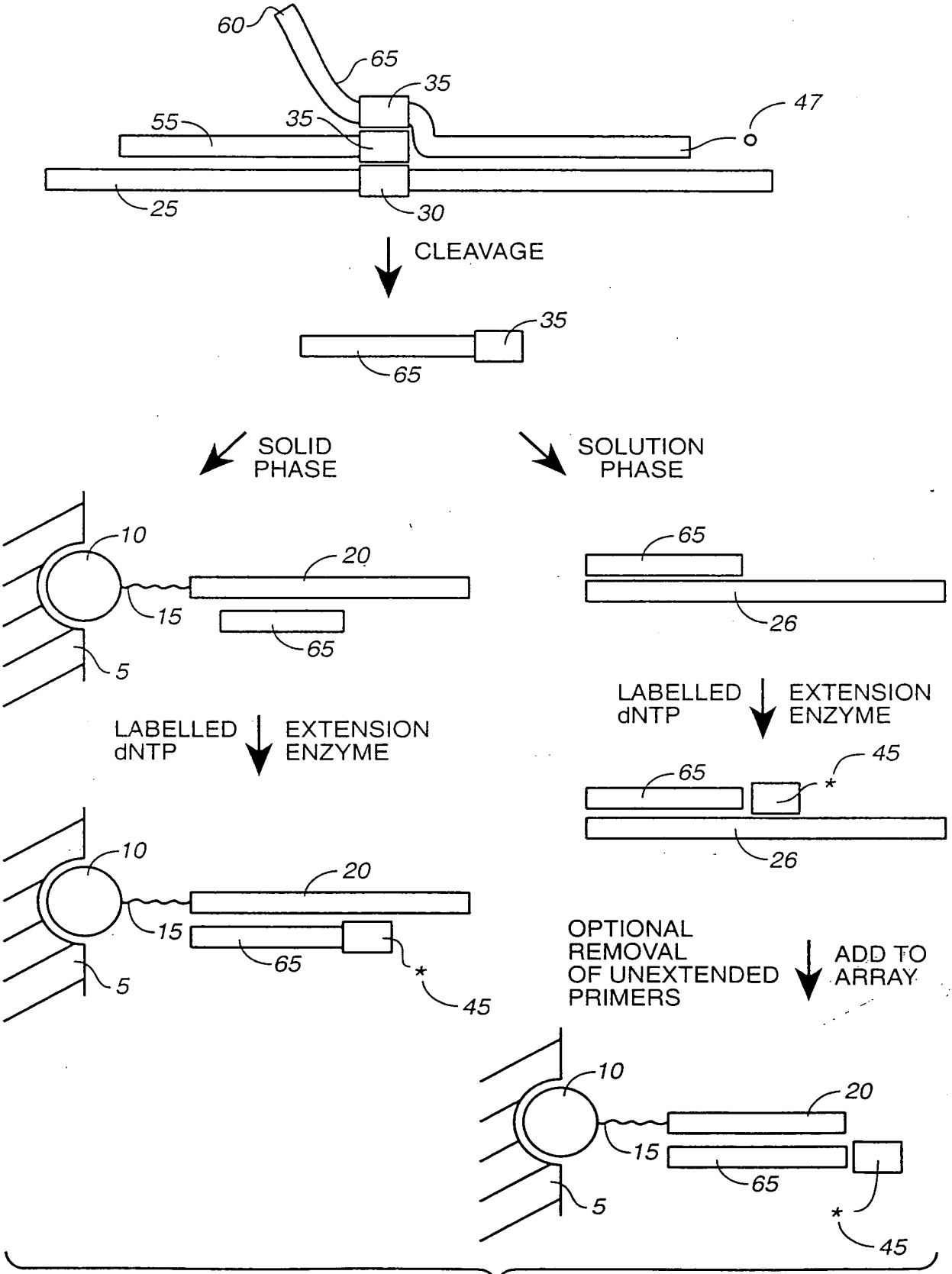
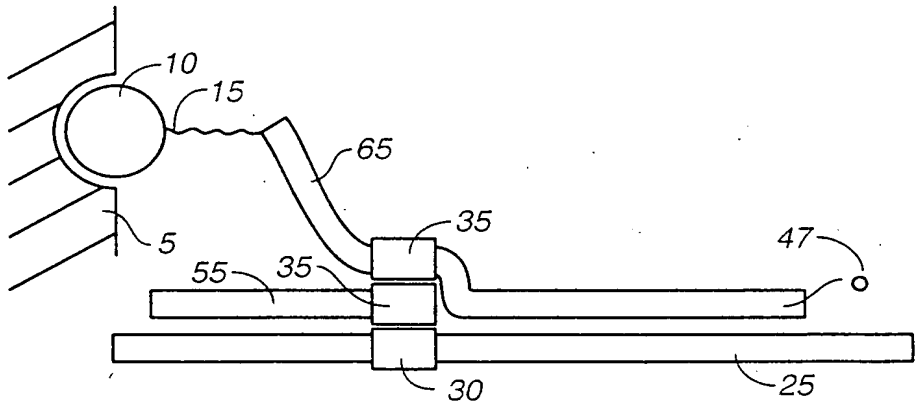
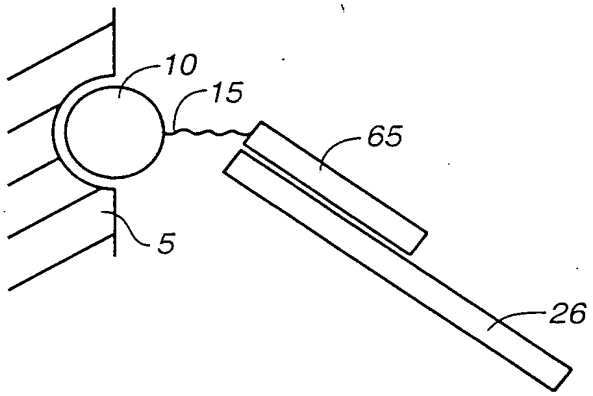


FIG._16A



CLEAVAGE
ADD TARGET TEMPLATE



LABELLED dNTP
EXTENSION ENZYME

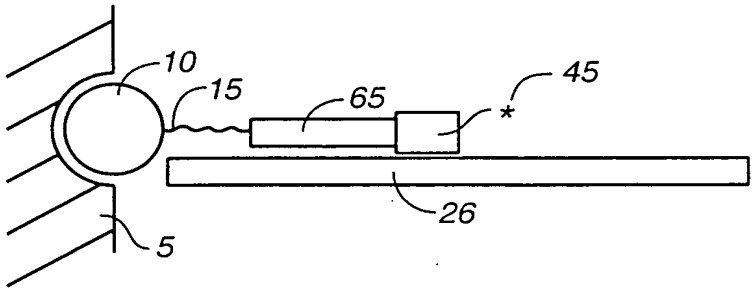


FIG._16B

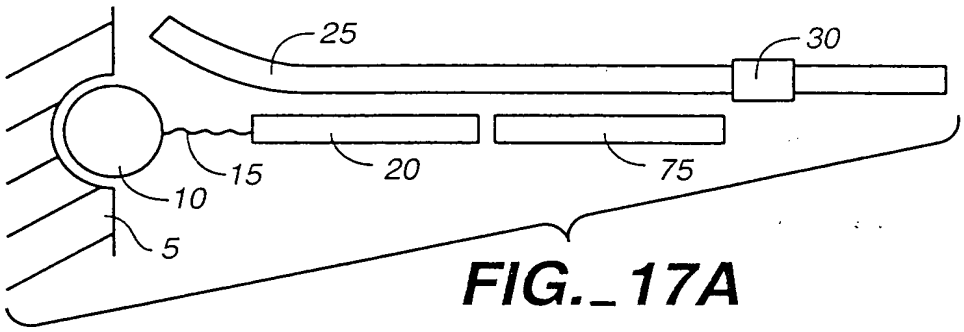


FIG._17A

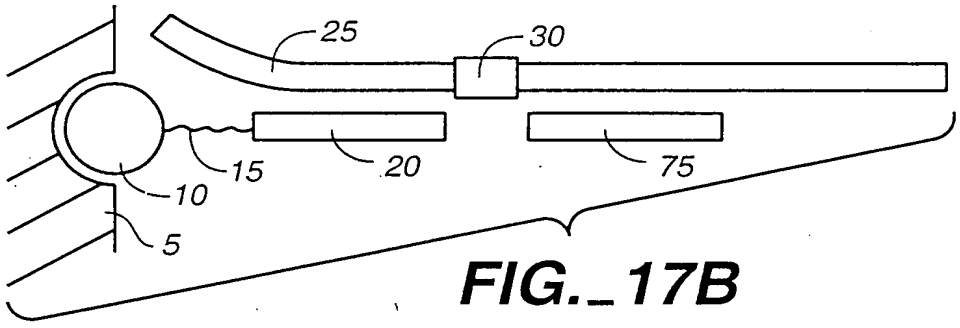


FIG._17B

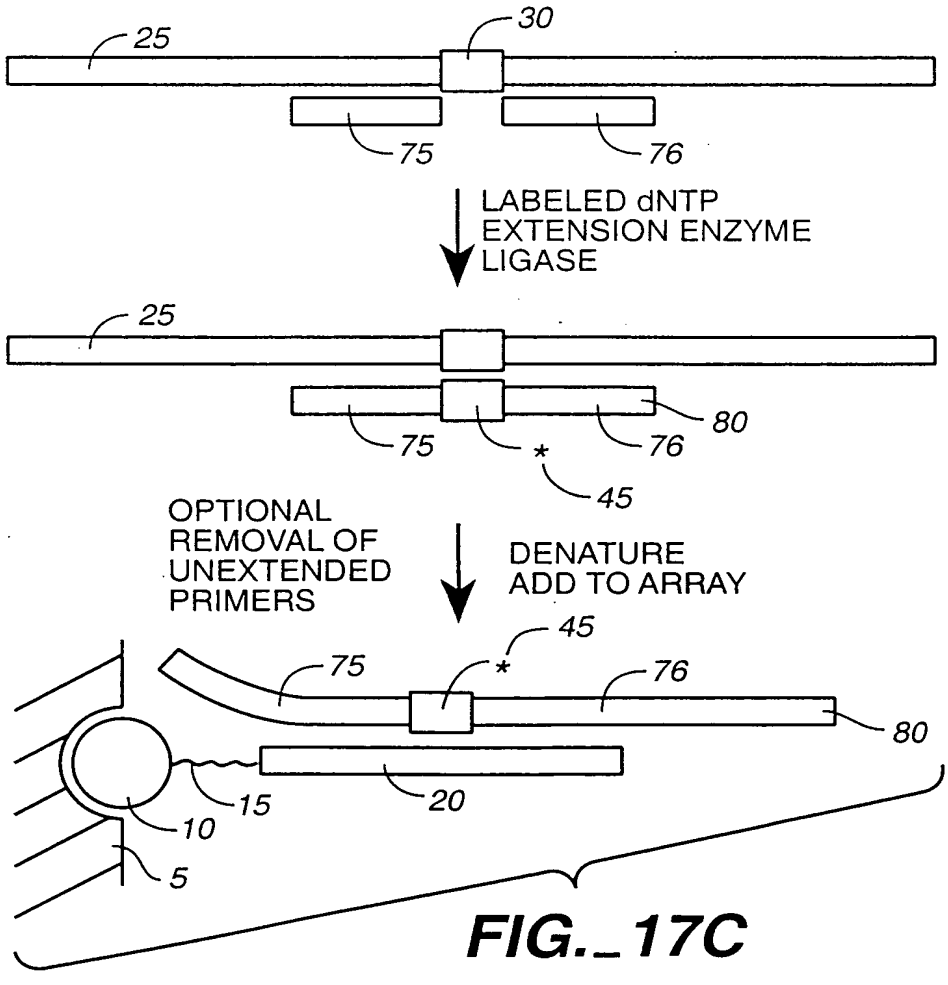


FIG._17C

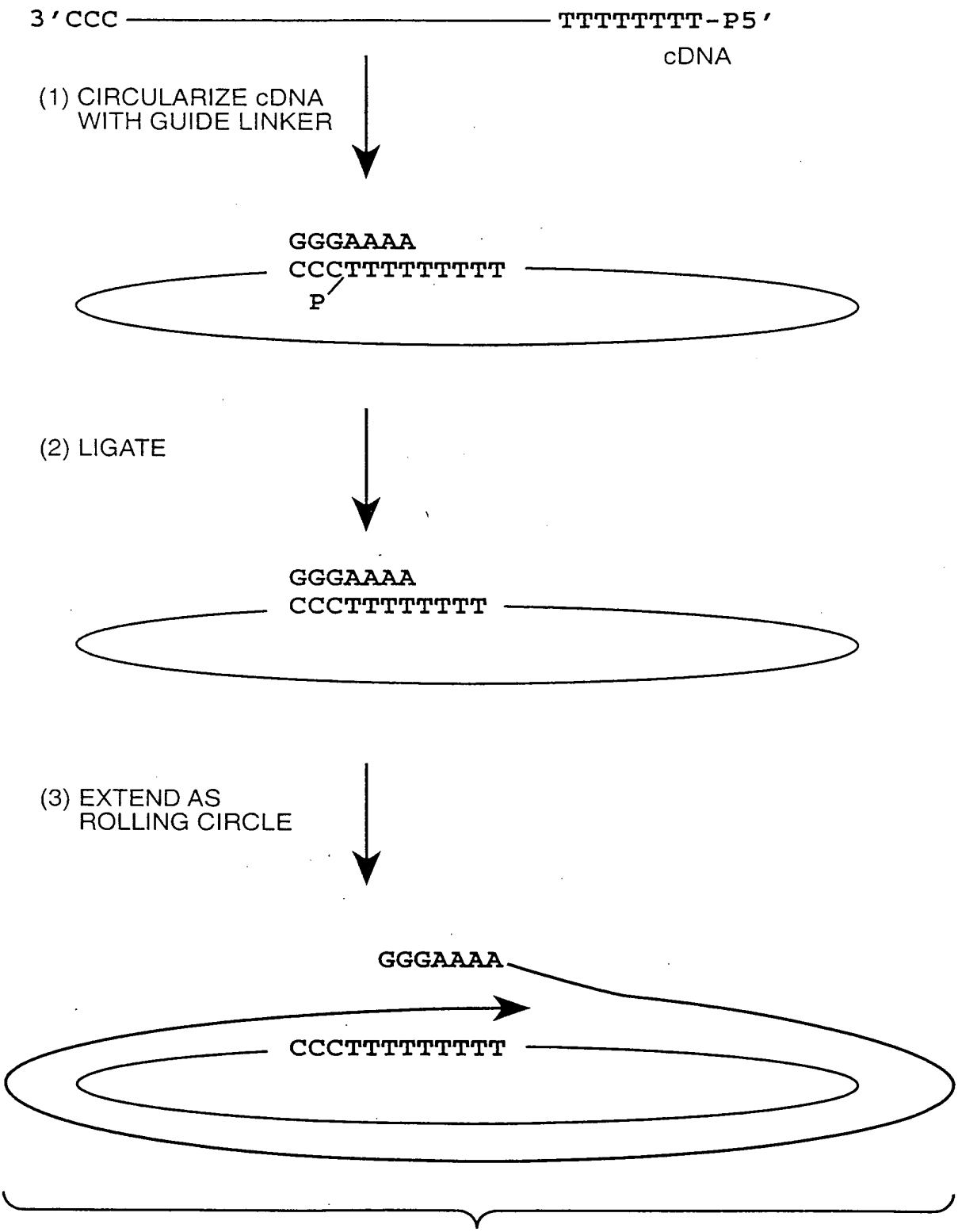
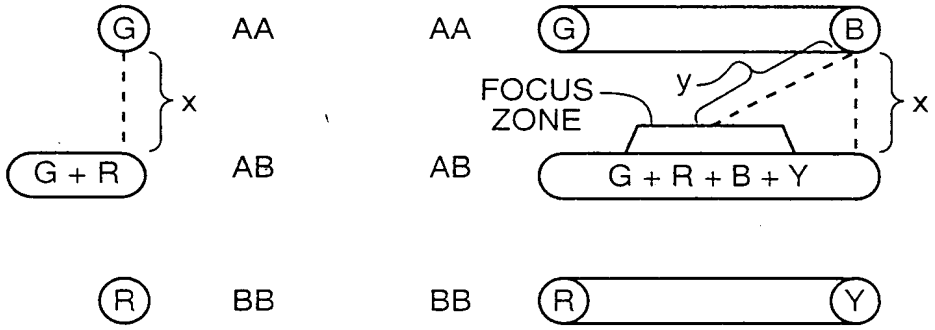


FIG._18

SINGLE LABELED PROBE		MULTI-LABELED PROBE	
GENOTYPE	SIGNAL	GENOTYPE	SIGNAL
AA	G / G	AA	G,B / G,B
AB	G / R	AB	G,B / R,Y
BB	R / R	BB	R,Y / R,Y

SIGNAL RANGE



x = SINGLE LABEL DISTANCE
y = MULTI-LABEL DISTANCE

FIG._19

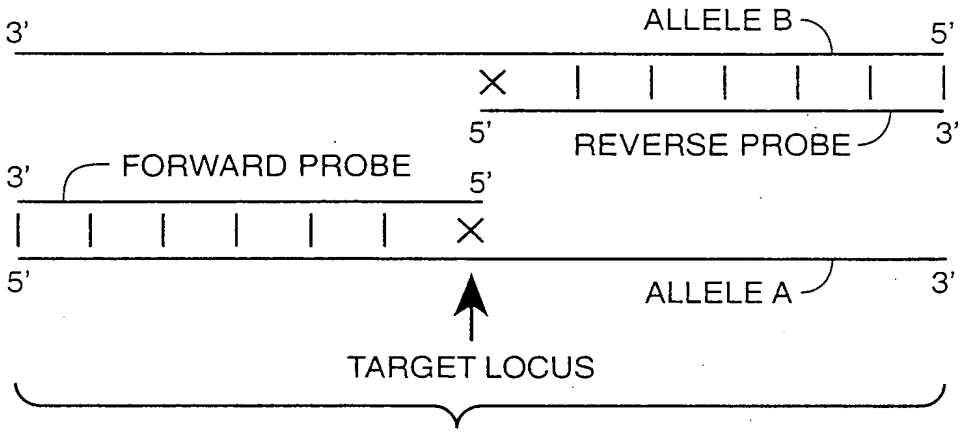


FIG._20A

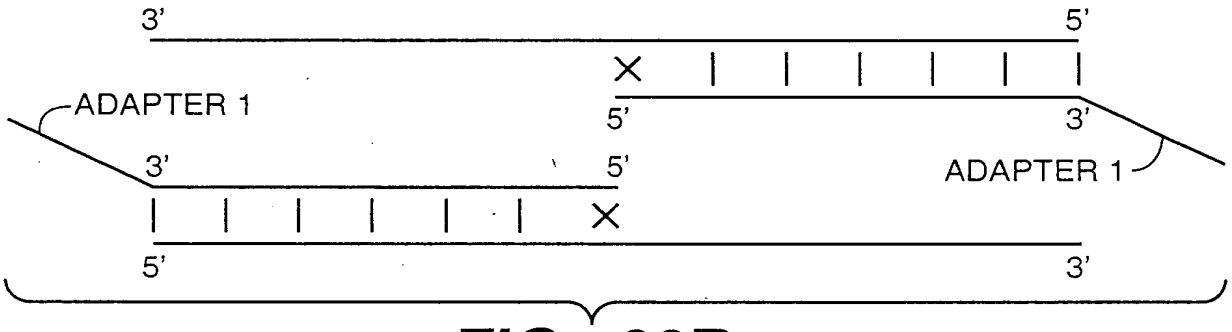


FIG._20B

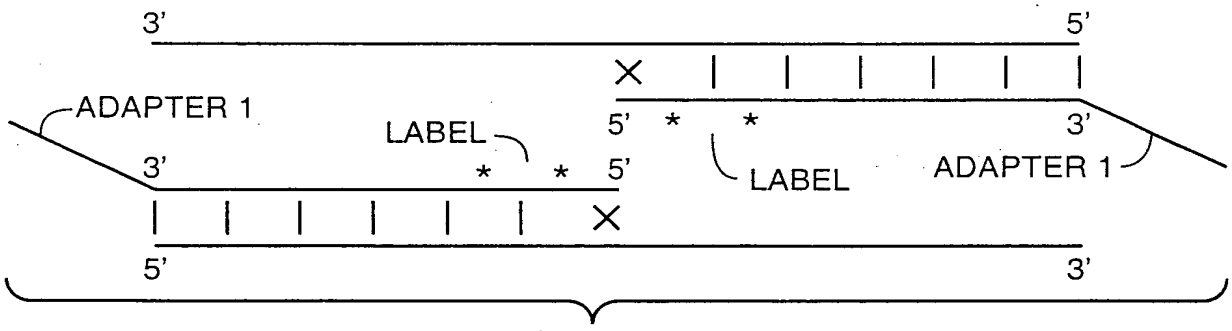


FIG._20C

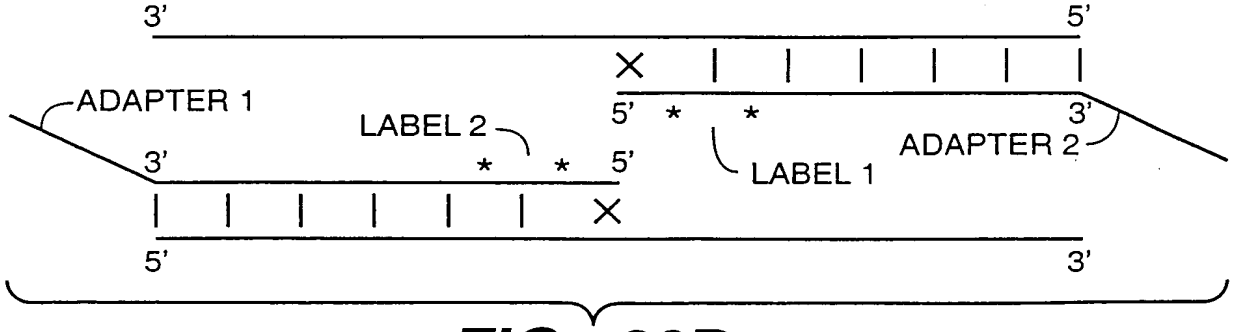
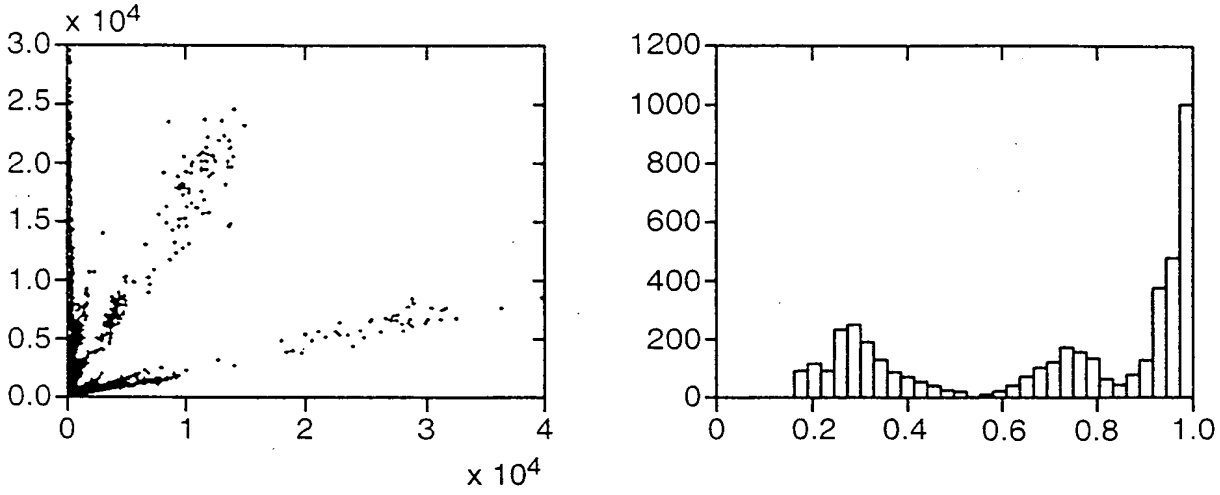


FIG._20D

BEFORE NORMALIZATION



AFTER NORMALIZATION

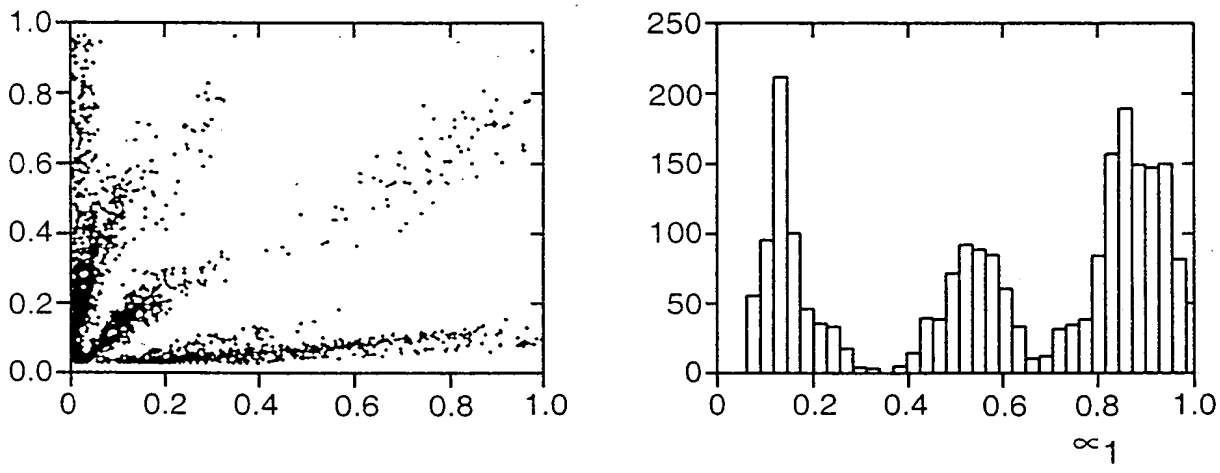


FIG._21

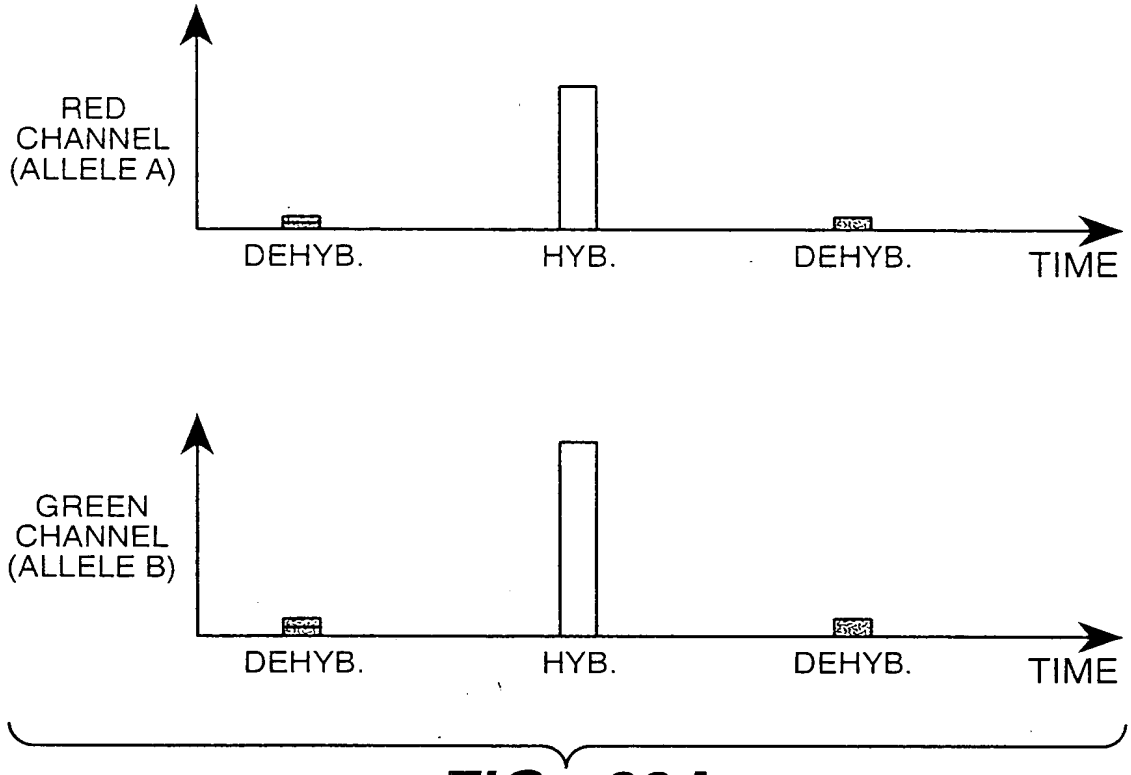


FIG._22A

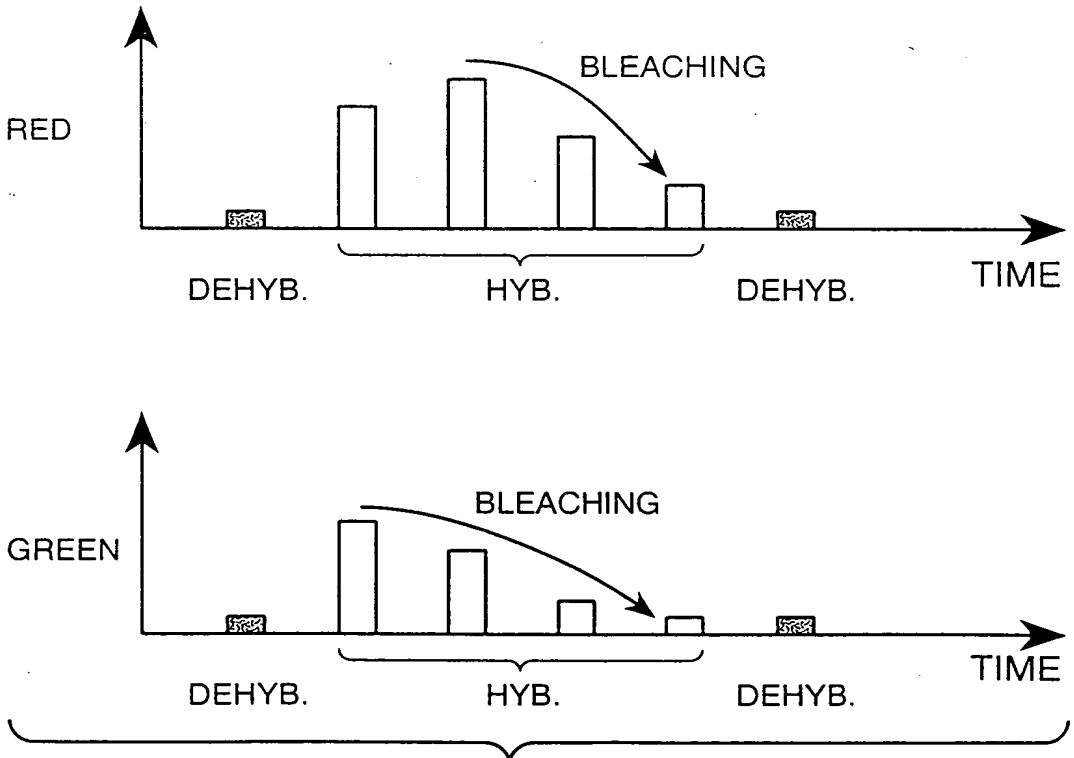


FIG._22B

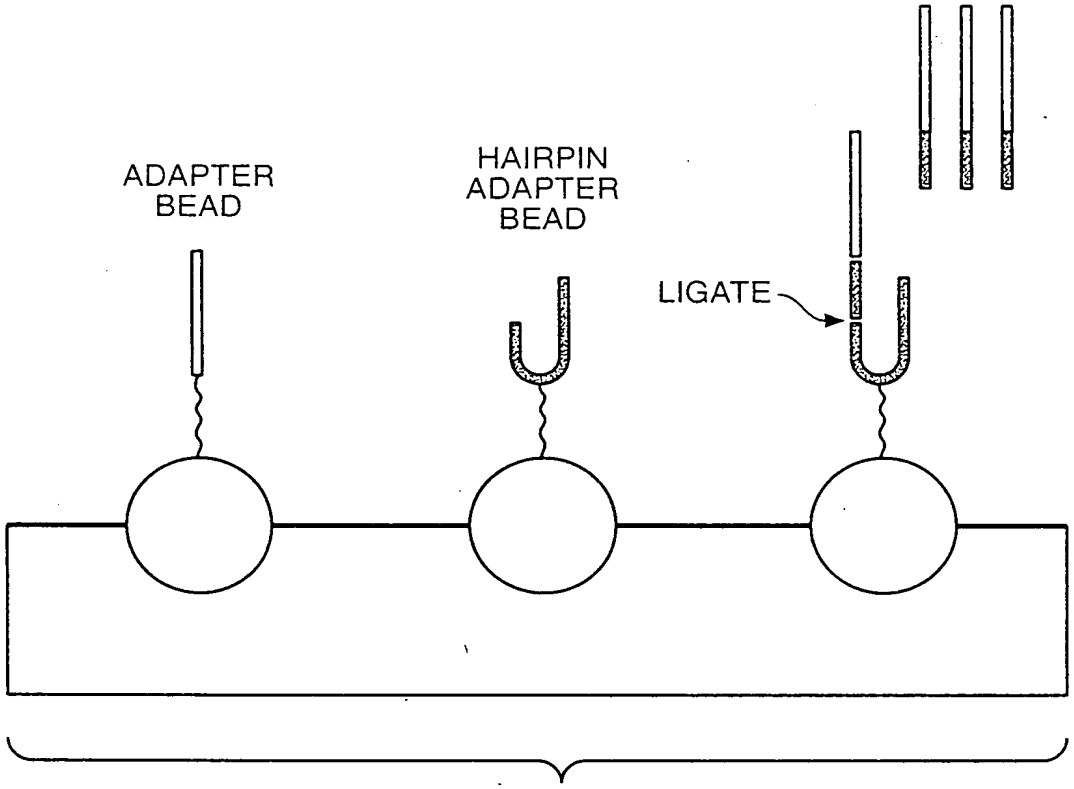


FIG._23

MATCH TO SNP ALLELE

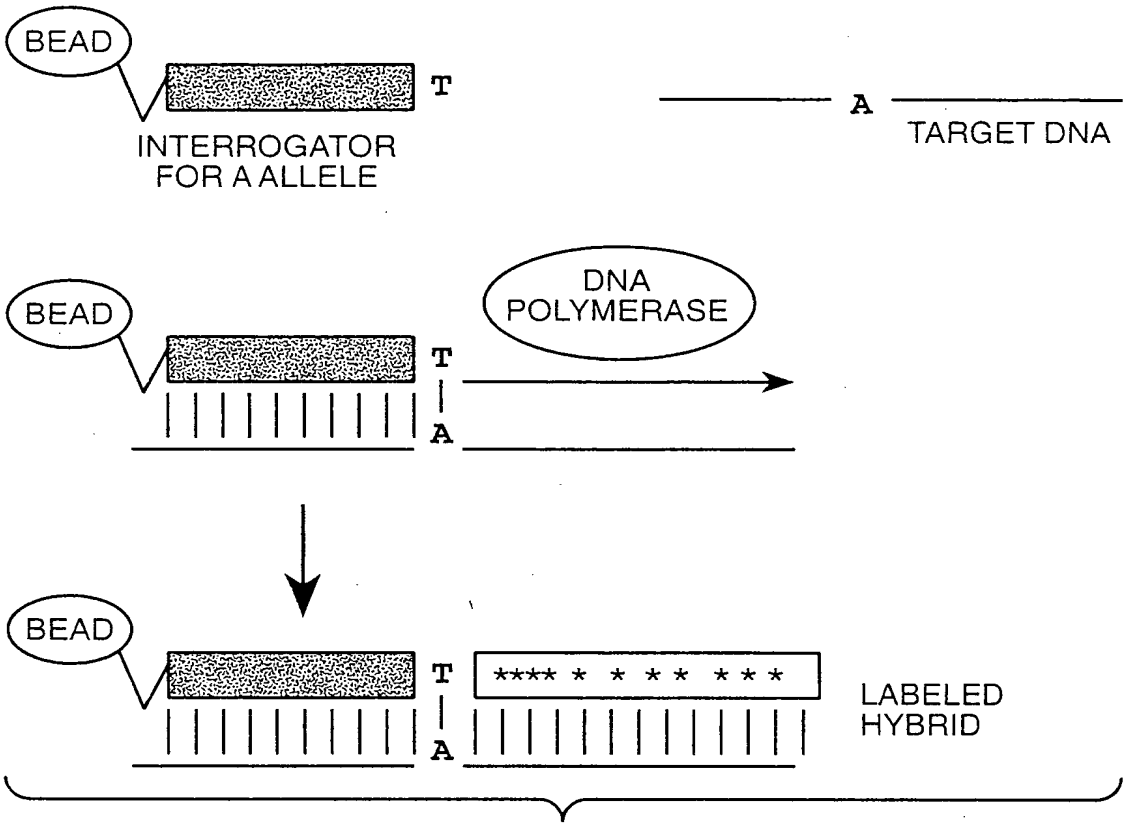


FIG._24A

MISMATCH TO SNP ALLELE

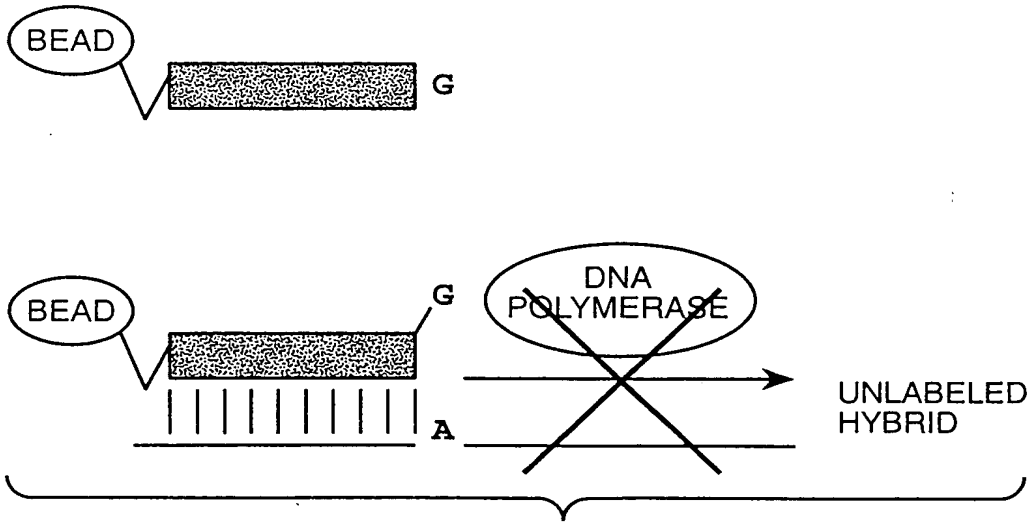
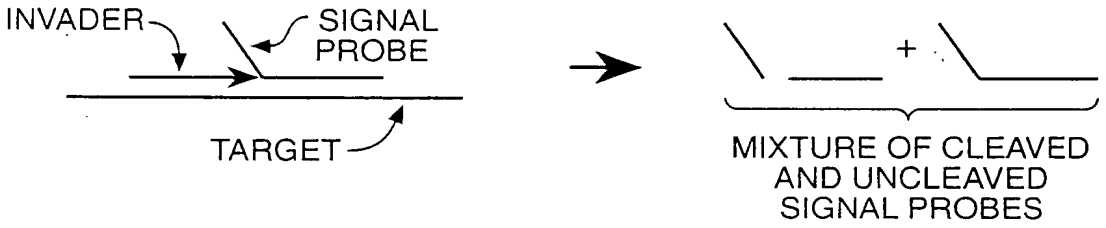


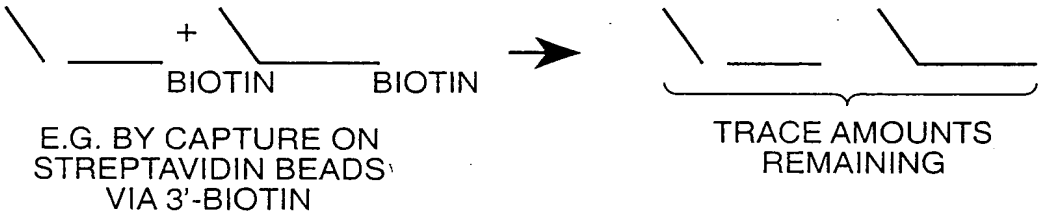
FIG._24B

INVADER - PCR

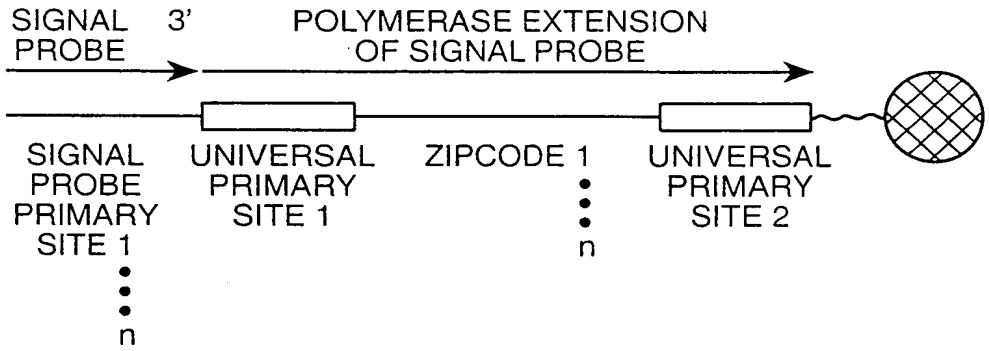
1) INVADER REACTION



2) REMOVAL OF UNCLEAVED SIGNAL PROBES



3) SIGNAL PROBE PRIMES SYNTHESIS OF AMPLICON TARGET STRAND



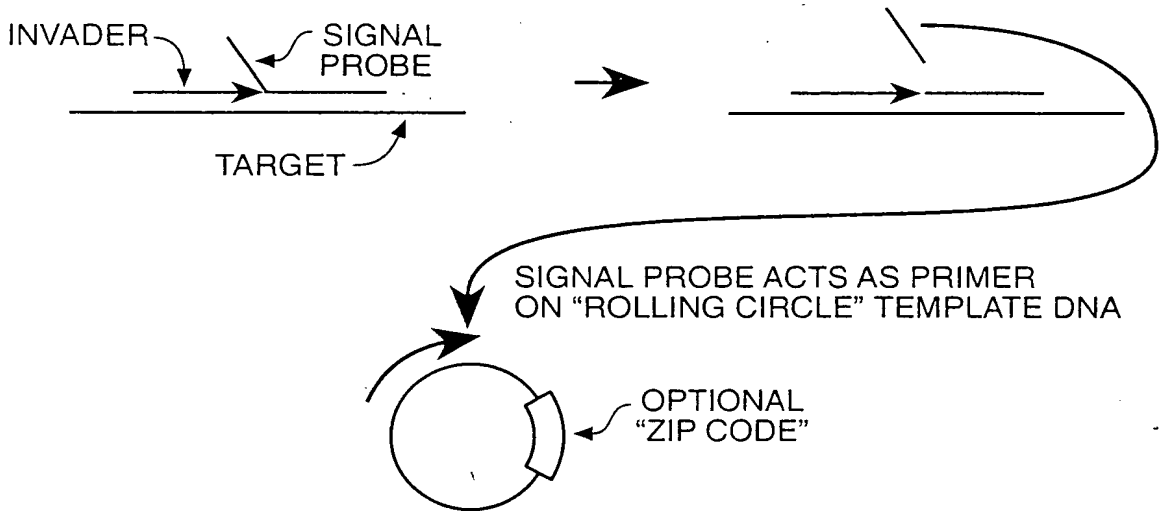
4) PCR AMPLIFICATION
NEWLY SYNTHESIZED TARGET STRANDS ARE DENATURED FROM TEMPLATE AND TRANSFERRED TO PCR REACTION (UNIVERSAL PRIMERS, dNT's, TAQ POLYMERASE) FOR MULTIPLEX PCR. UNIVERSAL PRIMERS ARE LABELLED E.G. WITH BIOTIN.

5) ARRAY HYBRIDIZATION - PCR AMPLICONS CONTAINING ZIPCODES ARE HYBRIDIZED TO ARRAY.

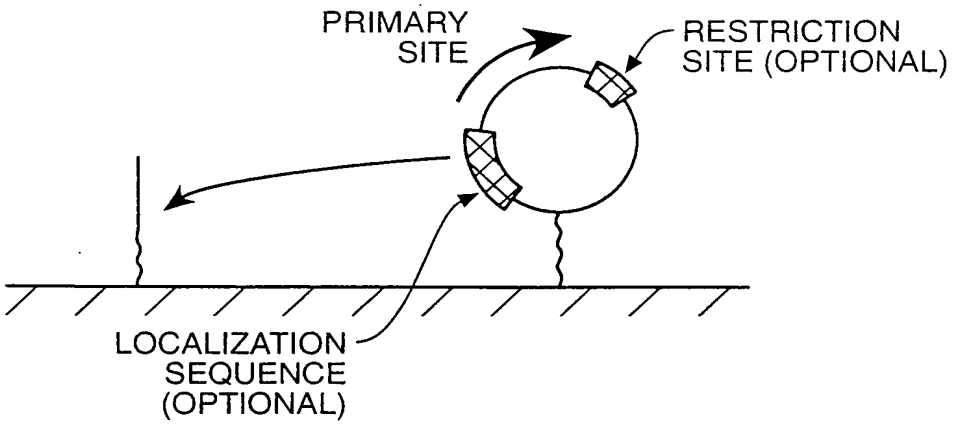
FIG._25

INVADER - ROLLING CIRCLE

1) INVADER REACTION



SOLID PHASE VERSION:



ROLLING CIRCLE TEMPLATE IS TETHERED TO SURFACE E.G. TO LOCALIZED "FEATURES" IN ARRAY FORMAT, OR TO BEADS.

ROLLING CIRCLE PRODUCTS CAN BE LOCALIZED E.G. BY HYBRIDIZATION TO ADJACENT PROBES OR RECOVERED IN LIQUID PHASE FOR HYBRIDIZATION TO A DETECTION ARRAY, E.G. BY ENZYMATIC CLEAVAGE.

FIG._26